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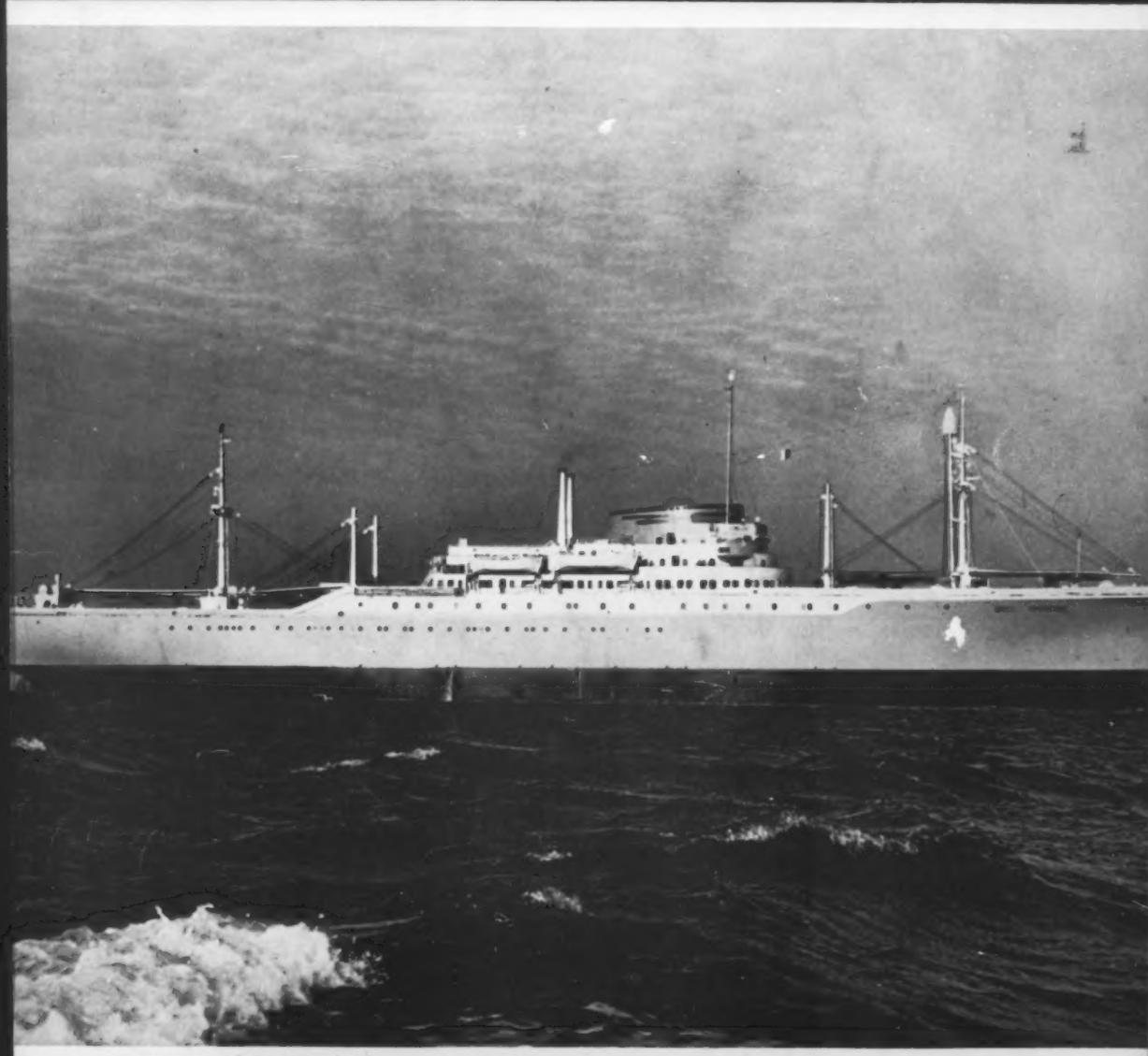
THE
Refrigeration
INDUSTRY

AIR CONDITIONING
EQUIPMENT

JANUARY, 1947

Saw
V.S. &
Leave gd. for trip

MERCHANDISING * INSTALLATION * MAINTENANCE



Circulation of This Issue 25,278



ahead with Weatherhead

IF IT WERE POSSIBLE, we would like to have all our customers and prospective customers visit us here in Cleveland and make a tour of our fine modern home plant . . . to see how we go about serving thousands of customers representing more than a dozen different industries—with hundreds of different original equipment and replacement parts.

Many of our customers have marvelled at the variety of parts that we produce. They don't quite understand how we go about designing and selecting a product for manufacture . . . how we produce such a tremendous volume with laboratory precision.

Just say "when" and we'll take you into our confidence . . . give you the answers to these and many other questions that will be of interest to you. Ask for your copy of the handsome new booklet, now coming off the press, entitled, "Prospecting for Perfection". It's yours for the asking.

Look Ahead with

Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND 8, OHIO



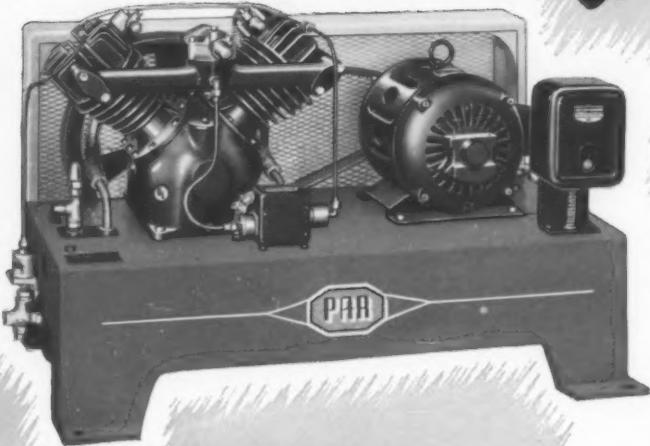
NEW YORK • DETROIT • CHICAGO • ST. LOUIS • ATLANTA • DALLAS • LOS ANGELES

ATTENTION REFRIGERATION ENGINEERS!

We manufacture valves, dehydrators, strainers, manifold assemblies, accessories and fittings—an extensive line of original equipment for the refrigeration industry.



**CHECK the PAR EXTRAS
and SEE the
BIG DIFFERENCE**



PAR—Condensing Unit Line sold exclusively through Franchised Refrigeration Equipment Wholesalers!

Year after year, new features, new improvements, new refinements, backed by engineering know-how, are added to the Par line. Today Par Refrigeration Equipment is tops in economy, efficiency and dependability. Check these Par Extras with your Par wholesaler, and see the big difference.

Lynch . . . By Comparison — You'll Buy PAR
Manufacturing Corporation
General Offices, Toledo 1 • Factory, Defiance, Ohio, U.S.A.

Measuring muscle by electronics



Frank Kanera
J & H Associate, Plant No. 7

The usual way to measure the torque of electric motors is to use an apparatus of wheels, brakes and weighing scales. This method was too slow and cumbersome for the new Jack & Heintz Fractional Horsepower Motor Plant.

So Jack & Heintz Production Engineers developed an ingenious electronic dynamometer which measures motor torques *in a few seconds* with unheard-of precision. An operator simply plugs in the motor and reads the torque on a dial. This helps speed up the production of Jack & Heintz motors for urgently needed appliances.

This is typical of the achievements of Jack & Heintz *mass precision* which are producing extra values in motors, refrigeration compressors, aircraft accessories, Eisemann magnetos and bearings *today*, and which promise startling developments for *tomorrow*.

Extra values through

JACK & HEINTZ
Mass Precision

JACK & HEINTZ PRECISION INDUSTRIES, INC., Cleveland 1, Ohio

THE

Refrigeration INDUSTRY

VOLUME 4, NO. 1



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SUBSCRIPTION RATES
FOR ONE YEAR

United States \$2.00
Canada \$3.50

Foreign \$4.00

Single Copy 25 cents

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ASTOR, LENOX AND
TILDEN FOUNDATIONS

THE COVER . . . Complete air conditioning has hit the high seas. The 10,000-ton Del Norte, of the Delta line, shown here, is equipped with a Carrier Conduit Weathermaster system, providing individual room control of temperature and humidity. It is the first completely air conditioned passenger ship. For more details on this "first," see the story on page 42.

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IRVING B. HEXTHER, President

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Add the profit line to your service business

Dayton

FRACTIONAL HORSEPOWER V-BELTS

BELTS

**A complete range of sizes for household
appliances and small machinery**

There is a Dayton V-Belt for all types of household appliances and small machines. This allows you to offer your customers a *complete* replacement V-Belt service. And what's more, you can replace with Dayton V-Belts with the utmost confidence in their performance. Dayton V-Belts operate satisfactorily under adverse operating conditions... will not stretch, creep or buckle. Remember, their non-dusting, noiseless cover is a real selling point.

Protect your reputation for service with the profit line. For information and catalogs, write to:

THE DAYTON RUBBER MANUFACTURING COMPANY • DAYTON 1, OHIO

WRITE FOR THE CATALOG YOU NEED



No. 44—For dealers offering complete replacement service.

No. 150—For designers of new equipment.



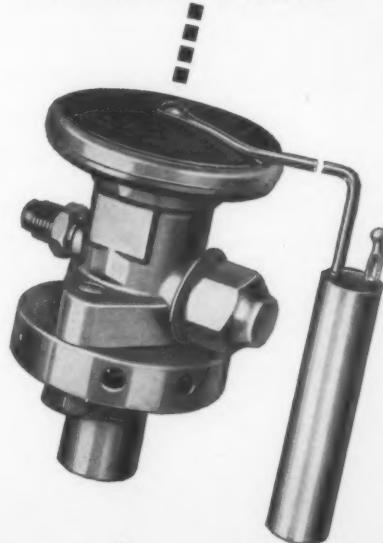
EVEN DISTRIBUTION...NO "STARVING"

WITH THE ALCO MULTI-OUTLET THERMO VALVE

Every circuit is fed its full share of refrigerant—the entire coil works at peak efficiency because the ALCO Multi-Outlet Thermo Valve assures:

- The refrigerant liquid is accurately metered at the point of expansion to all coil circuits
- Even distribution regardless of load changes—no "flood-ing" or short-circuiting
- No separation of gas and liquid before distribution
- Higher operating suction pressure—accurate control — no "hunting" or "cycling"

Result: less running time—lower operating cost. Available at your wholesaler's for all refrigerants and applications: $\frac{1}{2}$ to 50 tons FREON-12, 2 to 36 outlets. Ask for our Bulletin 180.



Designers and Manufacturers
of Thermostatic Expansion
Valves; Pressure Regulating
Valves; Solenoid Valves;
Float Valves; Float Switches.

ALCO VALVE CO.

843 KINGSLAND AVE. • ST. LOUIS 5, MO.

WANTED NOW

Empty "Freon" Cylinders

Users of "Freon" Safe Refrigerants are urgently requested to check all "Freon" cylinders on hand and to return empty cylinders at once—today, if possible!

Empties are badly needed to meet the greatly increased demand for "Freon."

Shortage of cylinders in

which to ship "Freon" has resulted from reduced deliveries of new cylinders . . . due to scarcity of raw materials, chiefly steel. One way to bridge the emergency . . . continue meeting the tremendous demand for "Freon" . . . is to utilize every available "Freon" cylinder. So won't you *please* check

all cylinders you have on hand and return the empties NOW.



*This handy memo may help you expedite matters...
please relay it to the proper person or department.*

(TEAR FROM CENTER AND ALONG THIS LINE)

To: _____

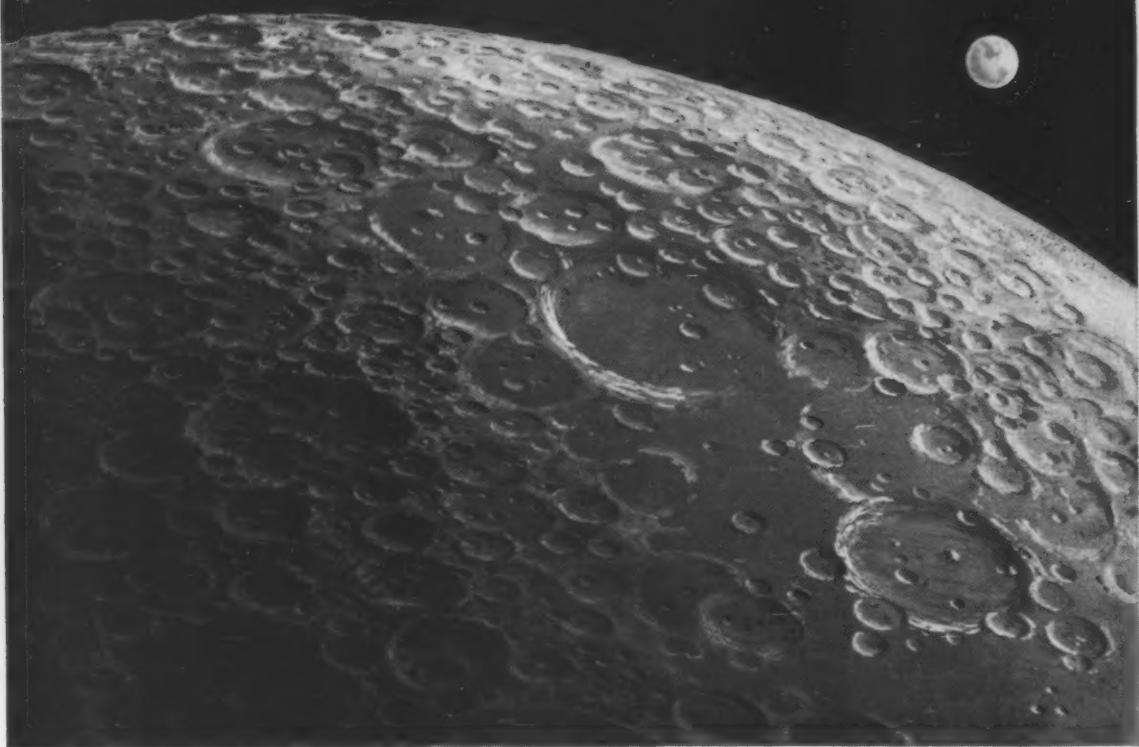
The "Freon" people have asked us to help meet a very serious shortage of cylinders. Please check all cylinders we have on hand and arrange to return empty "Freon" cylinders immediately.

Ship empty "Freon" cylinders via freight collect to:-

Kinetic Chemicals, Inc.
Carney's Point, New Jersey

**URGENT
MEMO**

ABSOLUTE ZERO



If you were to step from the sun-lit surface of the Moon into a crater-shadow, you would be plunged into inky darkness and inconceivable cold. Here the temperature hovers near the "absolute zero" of outer space, the utter absence of heat.

Man cannot artificially achieve this abysmal cold . . . would have little practical use for it if he could. However, in his numerous and daily uses for refrigerated spaces, varying degrees of cold must be economically produced and maintained. Ease of access and effective seal are assured, when the installation includes appropriate Jamison-built doors.

For nearly half a century, the Jamison name-plate on a cold storage door has stood for expert design and precise, painstaking workmanship . . . uniformly dependable operation over a long life of rigorous use.

Today's Jamison line . . . Jamison, Stevenson, Victor, and NoEqual Doors, and related products . . . serves the diverse needs of the refrigeration industry. For full information concerning the complete Jamison line and the address of your nearest factory-branch, write Jamison Cold Storage Door Company, Hagerstown, Maryland.

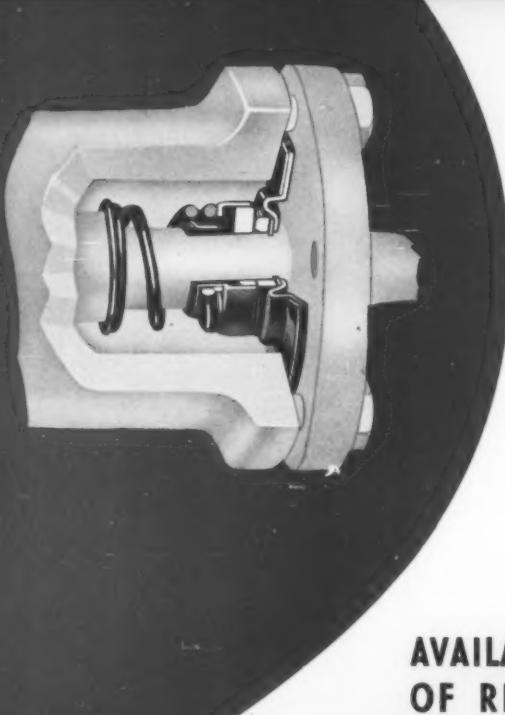
*Factory Branches
in Principal Cities, Coast to Coast*



JAMISON
COLD STORAGE DOORS

ROTARY SEAL

REPLACEMENT UNITS
FOR REFRIGERATOR COMPRESSORS



*Supreme
in the
Art of
Shaft
Sealing!*

AVAILABLE FOR OVER 752 MODELS
OF REFRIGERATOR ASSEMBLIES

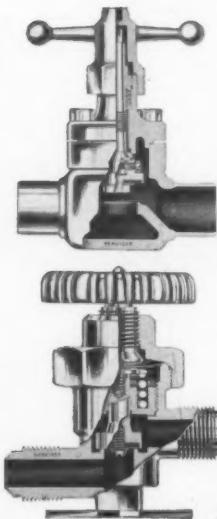


ROTARY SEAL COMPANY
2020 N. LARRABEE ST., CHICAGO 14, ILL.

Canadian Office: 382 Victoria Ave., Montreal 6, Canada



Special Ability AT YOUR COMMAND!



ALL these—up-to-date technical knowledge, familiarity with trade problems, trained personnel, ample stocks of Kerotest Valves and Fittings, the "Know-How" to find scarce items, speedy delivery—all these *special abilities* of your Kerotest Wholesaler are *at your command*.

Kerotest Air Conditioning and Re-

frigeration Valves and Fittings are distributed solely through Kerotest Wholesalers because they have individually demonstrated these special abilities.

For the best in valves and fittings . . . plus the finest in comprehensive service . . . depend on Kerotest and see your Kerotest Wholesaler regularly.

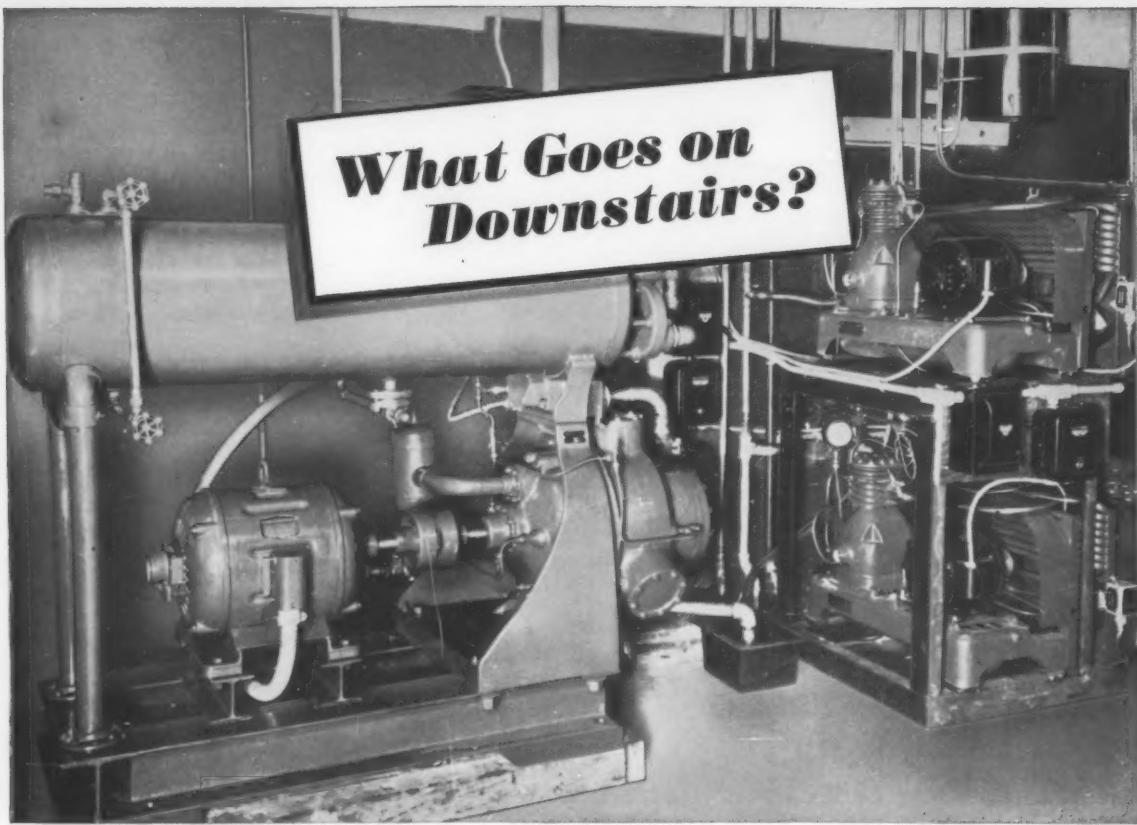
See your

KEROTEST

Wholesaler

AMERICA'S FIRST NAME IN QUALITY VALVES

KEROTEST MANUFACTURING CO.
PITTSBURGH, PA.



WAGNER Quality MOTORS

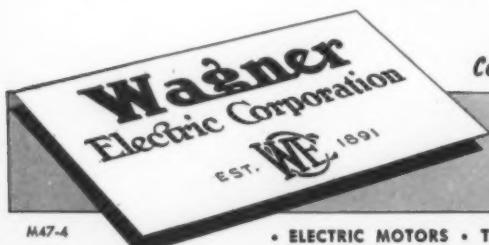
help customers shop in cool comfort...

BUSY shoppers never give a thought to what goes on downstairs. They're not interested in motors that drive the apparatus responsible for their comfort. But smart merchandisers know that comfort quickly turns prospects into customers. They know, too, that the dependability of the motors that drive air conditioning, heating, and ventilating equipment is of paramount importance. That's why you find hundreds of thousands of Wagner Quality Motors on the job everywhere driving all types of apparatus that help customers shop in comfort.

Today, hundreds of equipment manufacturers have standardized on these outstanding Wagner Quality Motors. Wagner can help you, too. If you manufacture or use motor-driven equipment, it will pay you to investigate Wagner Motors. Users of Wagner motors also profit by our quick, convenient, nationwide service facilities. Twenty-nine branch offices, located in principal cities, are ready to give you service and advice. Contact our nearest office, or write Wagner Electric Corporation, 6442 Plymouth Ave., St. Louis 14, Mo., for bulletins on the complete line.



The motor illustrated above is typical of the Wagner complete line of polyphase and single-phase motors.



Consult Wagner Engineers on all Electric Motor Problems



M47-4

• ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE PRODUCTS •



Designed...
for longer life
and easier service

New
Types SV31 and SV51
Henry Solenoid Valves Can Be
Serviced from the Bottom of
Valve/Body Without Disturbing
Piping or Electrical Connections

general *Specifications*

FOR TYPES SV31 AND SV51

For Freon, Methyl Chloride, Water,
Air, Oil, Gas, Etc.

1. Easy-to-service come-apart construction with access to all internal parts from bottom of valve.
2. Removable seats.
3. Manually operated stem for emergency use.
4. Valve body made of dense bronze casting.
Silver brazed joints.
5. Stainless steel internal parts.
6. Securely fastened coil housing prevents strain on top of plunger enclosing tube.
7. 4 position coil housing through 360°.
8. Triple impregnated coils, moisture repellent, low current consumption. Flamental lead wires.
9. Two mounting holes permit mounting from either side of valves.
10. Standard Voltages 115/60 and 230/60 A.C.
Dual voltage coil.

Announcements from time to time of additional new Henry Solenoid Valves will convince you of this fact: True to the Henry tradition of always building a better product, the Henry line of Solenoid Valves today leads in design features. Typical examples are the three and five ton, SV31 and SV51, which have come-apart construction. For the first time small valves of this type now have the optional feature of a manual stem lift for emergency operation. Why not check Henry specifications before you buy. Ask your jobber for details.

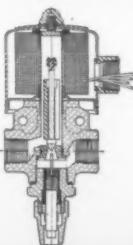
individual

TYPE SV31

Nominal Capacity

3 Tons Liquid Freon

Two piece impact
plunger with direct
acting metal-to-
metal seat.

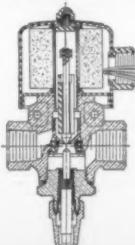


specifications

TYPE SV51

Nominal Capacity 5 Tons Liquid Freon

Two piece impact plunger operates pilot port
in piston. Molded synthetic ring provides soft
seat at main port for piston. Seating qualities,
therefore, are superior to conventional
construction.



HENRY VALVE COMPANY

Control Devices, Valves, Driers, Strainers and Accessories for Refrigeration and Air Conditioning and Industrial Applications

3260 W. GRAND AVENUE • CHICAGO 51, ILLINOIS Cable: HEVALCO CHICAGO





**ASK TO SEE THE
SPORLAN
*Catch-All***

on your next visit to your
SPORLAN WHOLESALER

HERE IT IS!

the New

SPORLAN

***Catch-
All***
FILTER
DEHYDRATOR

THE MOST PERFECT FILTER-DEHYDRATOR EVER DEVELOPED

COMPLETELY DIFFERENT IN DESIGN!

- The unique construction of the Sporlan Catch-All provides effective moisture and dirt elimination in refrigeration systems.
- The drying agent of the Sporlan Catch-All unlike other drying agents is a *moulded porous cylinder* which *both dehydrates and filters* . . .



IT CANNOT POWDER! • IT CANNOT PACK!

For
Peak Performance
on all installations
install a Sporlan
Catch-All
and take advantage of
these extra features

- The Sporlan Catch-All will reduce the moisture content in an average installation with Freon, Methyl Chloride or Sulfur Dioxide refrigerant to at least 40% below accepted commercial standards!
- The Sporlan Catch-All will catch all scale, solder particles, carbon, sludge, dirt or any other foreign matter *as minute as 9 microns* with negligible pressure drop!

SPORLAN VALVE CO.
3725 COMMONWEALTH AVE., ST. LOUIS 17, MISSOURI

Manufactured for You

Apply Your Name Plate



PLAN FOR IMMEDIATE DELIVERY

NOW available, these modern post-war built cabinets come to you complete except for motors . . . or less motors and condensing units. You install condensing units and/or motors and produce as your OWN brand. These cabinets are ready to be delivered to you, either singly or in quantity . . . NOW.

Cabinet 15 cu. ft. comes with valves and controls, plates and connections installed, ready to mount units and/or motors. Length is 80" overall, 34" high for easy packing and 27½" wide to permit passage through any standard door. Six pound density fibre-glass insulation (equal to 1½ times its thickness in ordinary insulation efficiency)

is vapor-sealed into the cabinet . . . a sure protection against moisture damage. Top opening lid as shown prevents "spill" of cold air; and positive "frost-break" provides ease of opening. Hardware is smartly appointed and chrome plated.

Made by manufacturers of controlled temperature equipment for over twenty years, these fine boxes, beautifully constructed, are of latest design with sturdy 18 gauge all steel construction, bonderized and finished in baked white enamel. They may be offered as premium quality and priced to suit the most discriminating customer. Limited quantity available complete—*Act at once.*

For full information write to . . .

Shurkold Refrigeration Co.

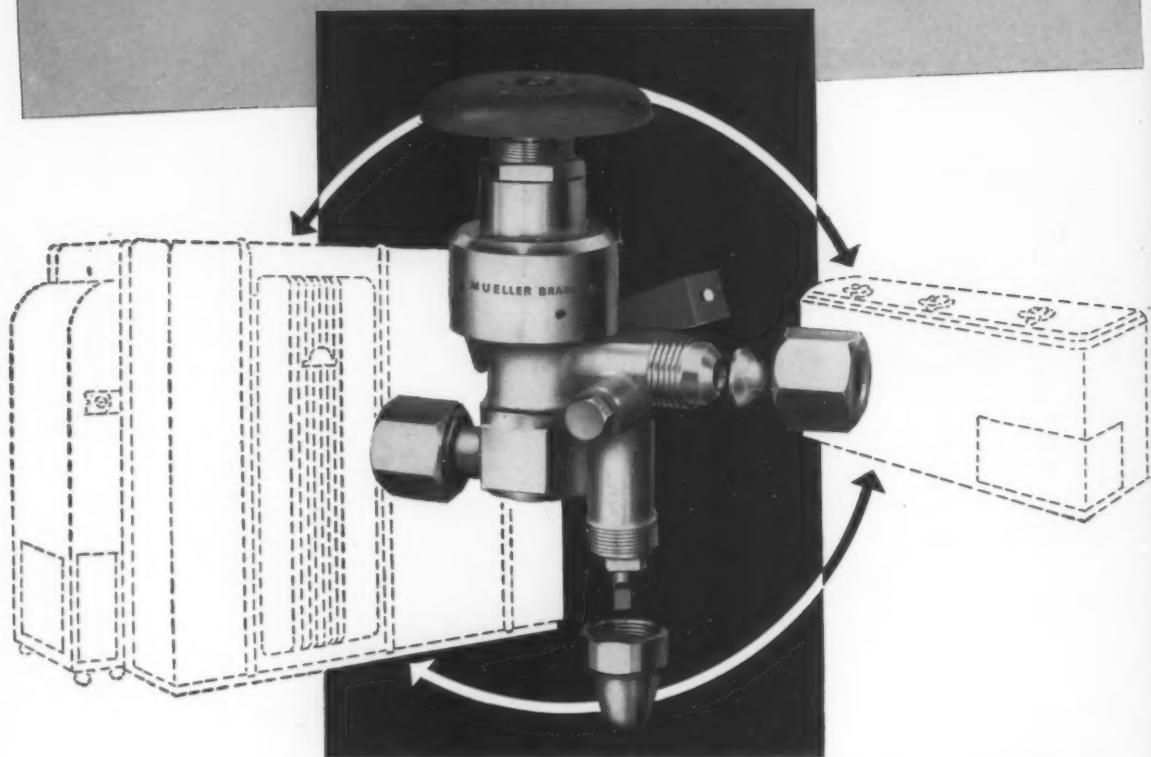
1441 Chouteau Ave. Dept. R-1

ST. LOUIS 3, MO.

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MUELLER BRASS CO.

Two-Temperature Control Valve



The Mueller Brass Co. Two-Temperature Control Valve is used in a refrigerating system where one compressor cools more than one unit and where it is desirable to more accurately control temperatures in the various units. It closely maintains a pressure in the coil at a level above the operating pressure of the machine.

An exclusive feature of this valve is the provision for by-passing the automatic valve in case it is desired to pump all the refrigerant from the coil. By means of this by-pass arrangement, the automatic valve can, in effect, be cut out of the system and the coil opened directly to

the suction line. Provision is also made for the attachment of a pressure gauge while the line is under pressure.

There is no limit to the number of valves that can be installed on one system. When several boxes are to be maintained at different temperatures, the Two-Temperature Valves are installed on the higher temperature units.

An oval handle, which is independent of the automatic closing feature, provides manual closing and eliminates the use of a separate line valve.

Valves are furnished 1/2" and 5/8" flare.

MUELLER BRASS CO.
PORT HURON, MICHIGAN

THOUGHTS FOR MERCHANTISERS



*THE LONGEST WALK
A CUSTOMER EVER TAKES!*

...when he walks off your books, dissatisfied, displeased and distressed. To make him a profitable customer again costs plenty, and the merchandising tragedy is that such costs can be avoided. A thoroughly dependable condensing unit is one of the surest steps you can take to safeguard good will, and protect your reputation for quality. And "BRUNNER" has always meant dependable condensing units. For many manufacturers BRUNNER is a *three way investment* in sales features—an investment in quality prestige, an investment in dependable service, and an investment in year 'round low maintenance cost.

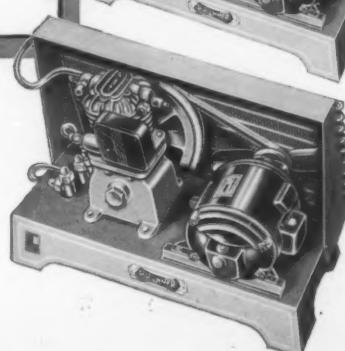
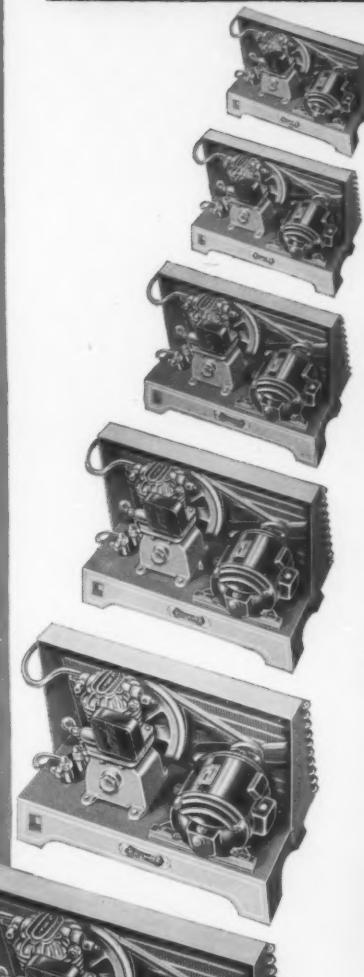
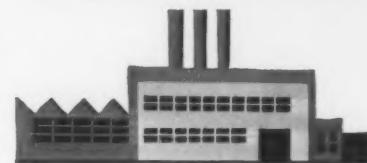
BRUNNER MANUFACTURING CO.
Utica 1, New York, U. S. A.

AIR AND WATER COOLED MODELS
 $\frac{1}{4}$ HP. TO 25 HP.

BRUNNER
SINCE 1906

BRUNNER
SINCE 1906

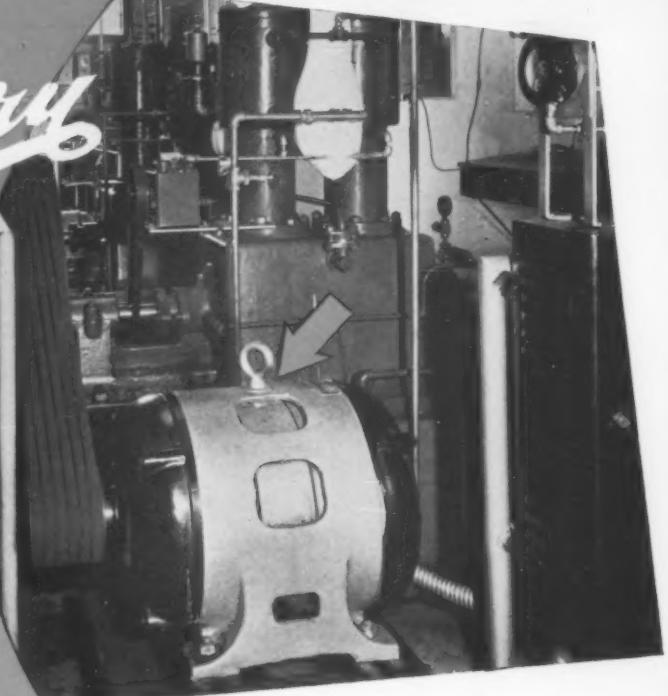
REFRIGERATION
helps you serve better



Three 30 horsepower Century SCH motors driving refrigeration compressors in a packing-locker-ice plant.

Century

TYPE SCH MOTORS



Start Refrigeration Compressors Easily • Smoothly Quietly • Without Over-motoring

Refrigeration compressors under load are easily handled by Century SCH motors with high starting torque and low starting current. With this type Century motor it isn't necessary to over-motor the running load in order to get enough starting torque to start the compressor.

This often means that a motor with the next lower horsepower rating can be used when you select a Century SCH motor instead of a general purpose squirrel cage motor.

Century motors are built with rugged frames and accurately machined feet to assure solid

mounting. They are well balanced mechanically and electrically. All these features and many others contribute to the smooth, quiet, dependable operation of Century motors.

There is a Century motor for every refrigeration, air conditioning and air circulating application. They are built in a wide range of types, in sizes from 1/6 to 400 horsepower. They are all engineered to the requirements of the machines they drive to assure top performance.

Specify Century for all your electric power requirements.



CENTURY ELECTRIC COMPANY • 1806 Pine St., St. Louis 3, Mo.
Offices and Stock Points in Principal Cities



**SUNROC ROLLED TO AN ALL-TIME HIGH IN
PRODUCTION AND SALES IN '46...**



Standard Model NM2B (ten gallons per hour) as illustrated is offered at no increase in list price: \$235 F.O.B. Glen Riddle, Pa.

*Now watch us go
...and grow in '47!*

Today, Sunroc is the largest advertiser and most intensive merchandiser of water coolers... with even bigger plans coming up!

Sunroc is proud of the magnificent job that its plant, its distributors and dealers have done this past year—particularly in view of the serious material shortages which hampered production. But now all eyes are on 1947! Sunroc will continue to top production, top quality and top sales; will continue to back its nation-wide distributor and dealer organization with sound promotion, forceful advertising and intensive direct mail—all designed to hold and increase Sunroc's margin of leadership!

So watch us go...and grow in 1947!

As specialists in water coolers, Sunroc makes the finest and most diversified line on the market. A wide range of AC and DC models to meet varying business, industrial, and institutional needs.

If you want to hitch your business to a selling star . . . get complete information on Sunroc's products, prospects and plans. The coupon below is your first step toward a Sunroc franchise. Sunroc Refrigeration Company, Glen Riddle, Pa.

SUNROC REFRIGERATION COMPANY
Glen Riddle, Pa.

Gentlemen:

Please send full particulars on the Sunroc Water Cooler franchise, and your story of "One Product, One Price, One Policy."

Name _____ RI-1

Street _____

City and State _____

I am ^{now} _{not} a water cooler dealer _____

"WATCH SUNROC GO
AND GROW IN '47!"

S-U-N-R-O-C
Water Coolers
GLEN RIDDLE, PA.

OVER \$2,000,000 SALES IN 1946!

Distributors and dealers felt the sales "pull" of the new Hudson Constant Pressure Carbonator in 1946. Here is a sales leader that really leads . . . with features that make easy selling for you.



Above Cut Shows Simplicity of Hook Up.
Only Three Connections to make.

HUDSON CONSTANT PRESSURE CARBONATOR

Sensational! Revolutionary! A complete, compact, self-contained carbonator that delivers a steady flow of sparkling carbonated water at a CONSTANT PRESSURE up to 125 pounds at the draft arm regardless of city water pressure.

Used and endorsed by ice cream manufacturers everywhere! Standard equipment with many soda fountain manufacturers!

Thousands of Hudson constant pressure carbonators are now in daily use throughout the world. The constant pressure feature is exclusive with Hudson. No other motorless carbonator has constant pressure because Hudson has the constant pressure feature thoroughly covered by patents issued and pending.

NOTE THESE FEATURES:

- No motor.
- No pumps to pack.
- No damp basements.
- Constant even pressure.
- Entirely automatic.
- Requires no electricity.
- Compact—Requires little space.
- Automatic purging.
- Eliminates soda coils.
- Requires no oiling or greasing.
- Requires no floor space.
- Entire unit installed inside fountain or bar.
- Maximum capacity—25 gallons per hour.
- Will operate root beer barrels or Coca Cola dispensers.

A Quality Product from the House of Hudson

HUDSON PRODUCTS COMPANY

4400 St. Aubin Avenue • Detroit 7, Michigan • TEMple 2-0690
EXPORT DIVISION • 2111 Woodward Avenue, Detroit 1, Michigan, Cable: FORACO



"DETROIT"

HALLMARK OF THE BEST

In Thermostatic Expansion Valves

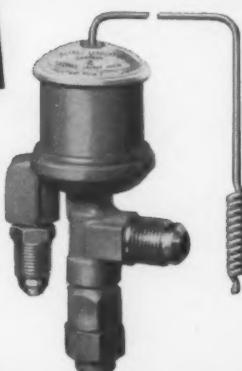
This trademark on a thermostatic expansion valve indicates that it is top quality—a valve that you can be sure will give superior performance over a long period. "Detroit" Valves have

been the standby of refrigeration men everywhere for many years. Easy to install—easy to adjust. Try these valves on your next suitable job.



NO. 673—"THE STANDARD OF THE REFRIGERATION INDUSTRY"

"Detroit" No. 673 has a long record of dependable performance in a wide variety of installations, and has been, for many years, "the standard of the refrigeration industry". Designed for average size commercial and air conditioning installations. Sensitive and accurate in operation—gas charged for instant response and reduction of motor load during pull-down cycle. Duraflex bellows and Delubaloy needles and seats resist corrosion and assure long life.



NO. 573—THE SAME SUPERIOR PERFORMANCE AS THE NO. 673 FOR SMALLER INSTALLATIONS

This valve, in $\frac{1}{2}$ ton (Freon-12) capacity, has the quality and operating characteristics of No. 673. Designed for small commercial installations, its double diaphragm gas charged power element permits close superheat control at low suction pressures and provides motor overload protection in its simplest, most effective form, using only one power element.

UNIT NUMBERS OF NO. 673 VALVE

Stock Items with Your "Detroit" Wholesaler
Use "Detroit" Unit Numbers when Ordering

Unit No.	Refrigerant	Max. Pressure	Connection
6731968	Freon-12	15	
6731428	Freon-12	55	
6731563	Methyl	10	
6731411	Methyl	40	

Rated at 1 ton Freon-12 or 2 ton Methyl

UNIT NUMBERS OF NO. 573 VALVE

Stock Items with Your "Detroit" Wholesaler
Use "Detroit" Unit Numbers when Ordering

Unit No.	Refrigerant	Max. Pressure	Connection
57300	Freon-12	45	
57309	Freon-12	10	
57311	Methyl	35	
57315	Methyl	5	

Rated at $\frac{1}{2}$ ton Freon-12 or .9 ton Methyl

DETROIT LUBRICATOR COMPANY



General Offices 5800 TRUMBULL AVENUE, DETROIT 8, MICHIGAN

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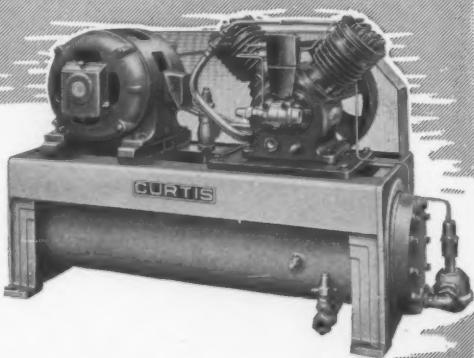
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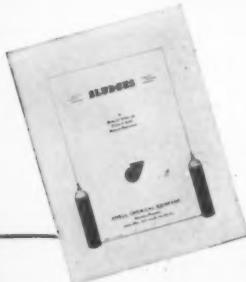
The Ansul Research Staff
REPORTS ON:

SLUDGES

Approximately 90% of the sludges produced in refrigerating systems are due to moisture. The exact cause can always be determined by analysis, but the appearance of the sludge (see photos) is usually indicative of the cause.

SLUDGE DERIVED FROM MOISTURE—If water is present in a machine, the nature of the sludge depends upon the type of refrigerant and length of time the water is present. All refrigerants . . . sulfur dioxide, methyl chloride, Carrene and "Freon-12" . . . react with water to produce corrosion products characteristic of each. To prevent sludge, the amount of water present in a refrigerating system must be small enough to avoid ice separation and corrosion. For "Freon-12" and methyl chloride, a quantity of water approximately .05% by weight will cause corrosion; the limit is somewhat higher for sulfur dioxide.

SLUDGE DERIVED FROM OILS—Oil sludges are characterized by total or partial solubility in carbon tetrachloride, gasoline and similar solvents. It is generally presumed that oil sludges are due to two causes: (1) an interaction between the unsaturated constituents of the oil and the refrigerant; (2) a breakdown of the oil due to heat, oxidation, friction, etc.



SEND FOR "SLUDGES"
by
Ansul Research Staff

A detailed analysis of the refrigeration sludge problem.

ANSUL WHOLESALERS are ready and equipped to render an intelligent, co-operative service to refrigeration engineers and maintenance men on problems which arise from time-to-time in the operation of refrigerating systems.

FOR EXAMPLE:

The Ansul Research staff has developed a method for analysis of sludges. This analysis usually gives the answer as to the origin of the sludge. If you have a sludge problem, send a sample of the sludge with pertinent information to the Ansul Research Laboratory through your Ansul wholesaler. An analysis report will be made for you without charge.

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GRANULAR SLUDGE... due to moisture



FLUID SLUDGE... due to oil



HARD SLUDGE... due to moisture and oil

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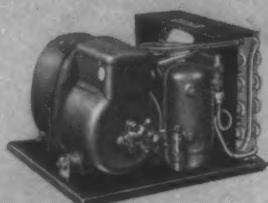
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1. Store Fixtures	6. Room Coolers
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3. Home Lockers	8. Water Coolers
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Servel, Inc.

Electric Refrigeration Division, Evansville 20, Indiana

This is one in a series of advertisements featuring the scores of new machine tools and processes now being used to produce Servel Supermetics. Reprints are available to dealers individually or in sets as series progresses.

"4 IN 1" DRILLING HELPS SWELL YOUR SALES

Long lines of high-speed modern machinery, like the deep hole semi-automatic drilling machine pictured above, help explain the superior salability of Servel condensing units.

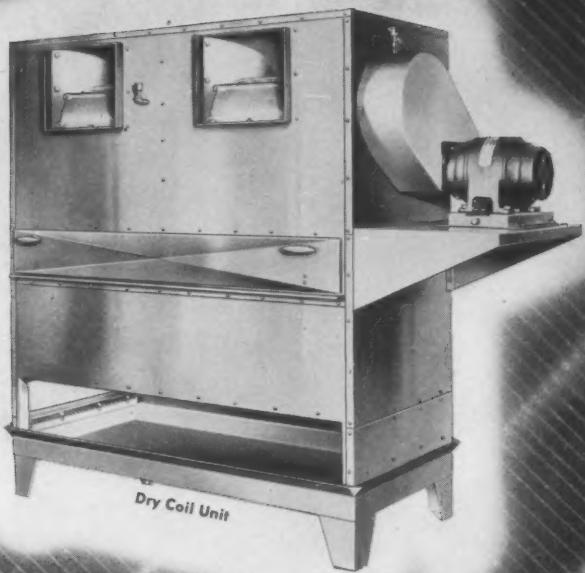
This particular machine is used to drill the oil passages in the Supermetic crankshaft. It is equipped with four high-speed drills which cut the oil holes through four crankshafts simultaneously. Special adjustments permit the highly skilled operator to drill the holes to varying depths — up to seven inches — depending upon the size of the crankshafts.

Each of these special drills has a tiny hole through its entire length,

to provide space for pumping cutting oil to the point where the shaft is being drilled. This drilling machine is the most modern equipment available for this type of high-precision work.

Up-to-date manufacturing methods and facilities are one of the chief reasons for the high quality of Servel units. Their dependable, trouble-free performance reduces sales and service costs, creates extra business for dealers and fixture manufacturers.

A postal card will bring you a free copy of the new booklet, "Servel Supermetic." Write today to Servel, Inc., Division RN, Evansville 20, Indiana.



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DRY COIL AND BRINE SPRAY TYPES

- 1000 to 24,000 CFM—Floor type
- Galvanized frame and pans—Sectionally built
- Variables: (1) Coil surface—Refrigerant feed
(2) All refrigerants
(3) Defrost sprays optional
- Conservatively rated—Competitively priced

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★ Direct-reading, visible, calibrated scale shows operating cut-in and cut-out points . . . simple adjustments. "Dual" Controls have visible calibrated scale showing high pressure cut-out point.

★ Calibration or accuracy of performance is not affected by vibration or mounting position.

★ Full range of differential adjustment in one model.

★ Two temperature ranges cover all requirements.

★ Sturdy contact mechanism with better electrical performance.

★ Large block assembly with terminals molded internally for strength and permanency.

★ Modern, attractive, high tensile strength plastic cover.

Series 270 and 272 PENN "Single" temperature or low side pressure controls. Also (not shown) Series 271 and 273 PENN "Dual" Controls which combine in one unit a temperature or low side pressure actuated mechanism and built-in pressure safety cut-out.



8 Star Features in this New PENN 2-Pole Control

Count them! Look them over! And compare them! And you'll see why this new PENN 270 Series Control is such news in the refrigerating and air conditioning fields. It's the first and only control to have a load-carrying, 2-pole switch.

Now line starters are not necessary to control polyphase motors of 3 H. P. and under (where protection against single phasing is provided). This device can control multiple refrigeration systems. Two separate load circuits can be controlled. And the PENN 270 will always break the "hot" line when wired as a 2-pole switch in single phase circuits.

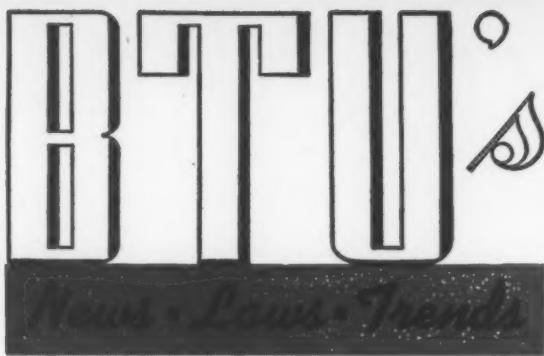
Never before did any control provide so much versatility, simplicity, efficiency and dependability. Send for full details to *Penn Electric Switch Co., Goshen, Ind.* Export Division: 13 E. 40th St., New York 16, U.S.A. In Canada: Penn Controls, Ltd., Toronto, Ontario.

PENN



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FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS



● **Coal Strike Hurt.** The soft coal strike is over temporarily, at least, but whether or not it was a long shutdown has affected the refrigeration field only in degree. Long or short, it has hurt the industry aplenty. Curtailment of electrical power, as a conservative measure, will force shortened work periods in some quarters; and it's almost certain to cause unbalanced inventories, because while one supplier may be in reasonably good shape, another may be shut down entirely. The loss in steel production will hurt in all quarters.

● **About Prices.** Now that virtually all OPA controls are off, expected price increases to cover increased materials and production costs have been made by a number of factors in the refrigeration field. Household refrigerator price increases, generally speaking, ranged from 10 to 12%, with some manufacturers making public announcement of this increase and others announcing "privately" to their field organizations. The logic of this latter plan is just a bit hazy.

Fractional horsepower condensing units have gone up generally around 20%, while fractional motors have increased from 30 to 50%, according to trade reports. Copper tubing is up and some component parts, like valves and fittings, may be increased because they use copper and brass.

● **Lockermen Hold Their Own.** Members of National Frozen Food Locker Association and of Frozen Food Locker Manufacturers and Suppliers Association, who cooperated with REMA in sponsoring the All-Industry Show last October, have decided to hold their 1947 conventions separate from any other organization.

Last week in September and Kansas City, Mo., have been set as the time and place of the 1947 conventions. Hotel President will be headquarters for the locker operators group and Hotel Muehlebach headquarters for the suppliers association.

● **Ninety-Day Warranty?** The end of the "warranty era" in refrigeration may not be too far away, despite the fact that domestic units at present continue to carry the five-year warranty protection. Speaking before an

RSES session during the All-Industry Show, L. W. Larsen, assistant sales manager of Tecumseh Products Co., suggested that the warranty on domestic hermetics be reduced to 90 days. The industry has progressed to the point, he said, where extravagant warranties no longer are necessary.

Mr. Larsen also said that manufacturers of hermetic units, in his opinion, will be willing to turn over the servicing work on these units to refrigeration service men when these men demonstrate they have sufficient knowledge to do the job properly. It's high-precision, close-tolerance work, he emphasized, requiring specialized equipment and training. For the present, he advised service men to check the trouble and replace external parts; major repairs should still be left to the factory.

● **Frozen Food Tidbits.** Two department stores in widely separated cities—Jordan Marsh Co., Boston, and the Bon Marche, Seattle—are inaugurating special services in connection with frozen foods and home freezer merchandising. Jordan Marsh is planning to start home deliveries of frozen foods on a once-a-week basis, the service eventually to cover the whole greater Boston area. Freezer sales will be limited to homes which can be served by the delivery plan, since the combination is considered a "package" proposition.

The Bon Marche is planning to rent freezers for \$2.50 per month, with purchase optional, and with a home-delivery service to freezer users. Like the Boston plan, this one will also be limited to certain districts for the present.

● **Steel Scrap Needed.** A continuing shortage of steel scrap is restricting production of refrigeration equipment. You can help alleviate this situation by rounding up every possible bit of scrap you can get your hands on and selling it to a steel scrap dealer in your community. You'll find him listed in the classified section of the telephone book.

● **30,000 by 1951.** There will be 30,000 modern locker plants by 1951, believes C. G. Holme of Sebastopol, Calif., past president of the National Frozen Food Locker Association. This is more than three times the present number of plants. If Mr. Holme's prediction is borne out, and we've no reason to believe that it won't be, that means some nice business for refrigeration people . . . and for locker people, too.

● **Two Strikes and Freon.** The Freon-12 supply, critically short in recent months for lack of cylinders, faced two new complications last month as the result of a brace of strikes—the first, a strike at the works of Kinetic Chemicals' main supplier of carbon tetrachloride, a basic raw material; the second, the coal strike and the resultant embargo on certain types of rail shipments (although shipments of refrigerants for food preservation were specifically exempted from the embargo terms). See the news pages for fill-in details on the Freon-12 situation.

The HOW and WHY of Job Cost Records

A VITAL section of any successful contractor's record-keeping system should deal with the HOW and WHY of keeping Job Cost Records.

A Job Record, to be of any value, should show whether a profit or loss is made on a job, and where such profit or loss occurred. If the job is a big job, and long-drawn out, with a number of different operations or units, the contractor-dealer should know how he is coming out on each of the operations or units as the job progresses. This enables the contractor to size up the situation, from time to time, and change the "treatment" if the "patient" is not progressing profitably and properly.

This has many advantages over waiting until the job is finished and then getting the bad or good "news". After the job is done it is sometimes too late to do anything about it, whereas if you had "kept the score", as the job went along, you might possibly have seen to it that money was made, or saved, and averted any probable losses.

On all jobs, the Job Record, when

By Guy M. Carson
Comptroller, Tallman, Robbins & Co.

completed, should show all the direct expenses of that particular project and should be compared with the estimate. This gives the contractor-dealer a check, not only on his production, but on his estimating, and keeps him up-to-the-minute at all times. Such a contractor then, literally "Knows His Business". He knows where he is making his money and where he is losing it, and can correct the bad situations.

"Accounting" is knowing all the mathematics regarding a business, and has enabled many men to grow big. Lack of that knowledge has caused thousands of men to fail.

You, in your business, need to know the mathematical facts. If you know them and properly weigh them, they will tell you what you must know if you are to operate successfully and with profit.

It is not enough to know only that

you made, or lost, money on a job.

You should know how you came out on your labor; how you came out on your sub-contracting; how you came out on your materials; and last, but not always least, how you came out on your miscellaneous expenses. Sometimes, if overlooked or miscalculated, miscellaneous items are the "straws" which "break the camel's back". In other words, they can eat up ALL your profits.

How Long Should It Take?

This information can be had in a number of ways. Some methods are simple—and some so complicated that the contractor-dealer finally gives up in discouragement. Sometimes it takes so much time to get the information that it is out-of-date and the contractor can give it little attention. Sometimes it is inaccurate and the contractor loses confidence and gives up in disgust, and thereafter operates by guess.

That's the dangerous stage. You'll need a rabbit's foot or a horse-shoe

JOB RECORD SHEET					JOB NO. 10			
OWNER John Doe		PROJECT LOCATION 411 W. Butler						
ADDRESS 120 S. Western Ave.		TELEPHONE NO. 706 - J						
RECAP OF COSTS MEMO ONLY		DATE 194-		DEBITS	DATE 194-	CREDITS		
Materials	\$ 100.00	Apr 1	A.B.C. Sup. Co.	Material	100.00 Apr 15			
Labor	123.00		M. Andre	Sub. Cont.	125.00			
Mid. Exp.	41.50		City	Permit	2.00			
Sub. Contractors	200.00		Mooley	Sub. Cont.	75.00			
Direct Job Costs	464.50		Wages	From P. R.	123.00			
Overhead - 25%	116.12		4 H. & R. Trussing	F. B.	21.50			
Total Costs	580.62							
Sold For	640.00							
Profit on Job	59.38							

Fig. 1

JOB LEDGER SHEET

ARCHITECT *M. Andre*
TELEPHONE No. 8111

OWNER Conway - Appleton
ADDRESS

JOB OR
PROJECT NO. _____

Fig. 2

Fig. 3

if you've reached that stage.

Here are two illustrations of the right kind of Job Cost Records. One is of a small job, and one of a large job; both are handled exactly the same. The simplicity of the method illustrated appeals to most contractors. To those who prefer, this system may be expanded easily into a most complete and detailed double entry system.

Illustrated in Figure 1 is a small job. If you refer to the illustration in our previous article (page 32, Nov. 1946 issue) you can trace all entries of expenses, except wages. Wages are entered from the Payroll and the credit as shown above is from "Cash Receipts".

In keeping Job Records, each job or project should be given a number.

How Should Record Be Kept?

If the job is small, you use the short form, which permits four jobs to be recorded on each sheet. If the job is a sizeable one, you use the larger one-job-to-a-sheet form. In the latter case, the estimate should be placed on the left-hand side of the page, for memorandum and comparison. All direct expenses are entered on the debit side of the Job Record sheet from your Cash Disbursement Book, and your direct labor from the Payroll Book.

In the Cash Disbursements book, the Job Number has been placed in front of each direct job expenditure, so it is a simple matter to transfer these charges to the corresponding job or project number. When entered on the Job Record sheet, the

entry shows what the expense was for.

All receipts are entered to the credit side of the proper job record sheet from the Cash Receipts book. When the one-job-to-a-sheet is used, and the estimate copied on the left hand side, it is easy to compare estimated with the actual costs, because they have been accumulated on the same page and you can tell how you are coming out on the job. If the job is a big one, the reverse side of the Job Record sheet, or additional sheets, may have to be used to enter all costs.

In this case, where there are numerous entries of expenses, a recap is provided on the back of the Job Record. Then, when the job is finished, or as parts of construction are completed, the total cost of each opera-

Continued on page 51

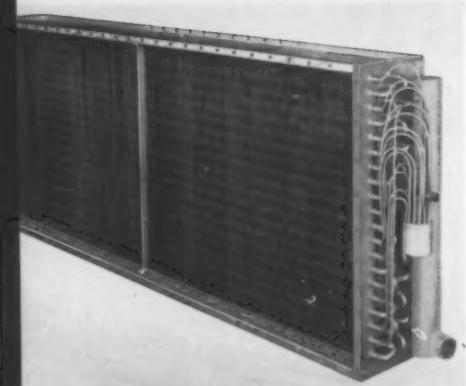
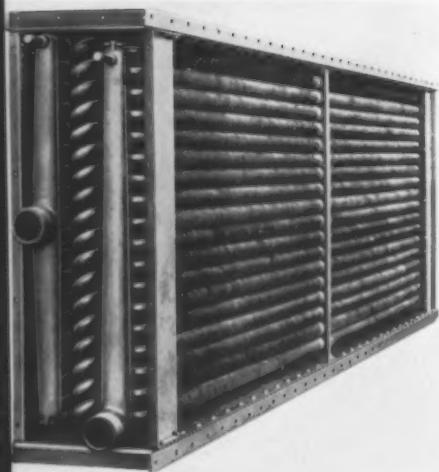


FIGURE 4A. A typical cooling coil of the direct expansion type.



↑ FIGURE 4B. A typical water cooling coil such as might be used in smaller installations.

↓ Figure 5A. A self-contained room cooler unit of 3/4-hp capacity.



COOLING FOR HUMAN COMFORT

Comfort Cooling Methods

By S. C. Moncher

Regional Manager
Electric Power Equipment Co.

THIS series of articles on the fundamentals of comfort cooling is designed to serve two purposes: (1) provide those just entering the air conditioning field with a basic understanding of the factors involved in comfort cooling; and (2) enable the trained air conditioning engineer to discuss comfort cooling applications in a non-technical language that the prospect or the customer can understand.

METHODS of conditioning air for comfort cooling applications: There are three main methods of treating air so that it will contribute to human comfort in the summer time. These are as follows:

- (1) Simultaneous cooling and dehumidifying.
- (2) Chemical dehumidification plus cooling.
- (3) Evaporative cooling.

Method 1 is most universal in application, and is used in the majority of comfort cooling installations. Method 2 is most appropriate when the relative humidity of the air is high and its dry-bulb temperature moderate. Method 3 can be used successfully only when the relative humidity of the air is low and its dry-bulb temperature high. Each of these methods will be discussed in detail below.

(1) SIMULTANEOUS COOLING AND DEHUMIDIFYING: Whenever air is cooled below its dew point, moisture will condense and may be drained off as a liquid. Under this condition, therefore, cooling and dehumidifying occur at the same time and are, therefore, simultaneous processes. In practice, simultaneous cooling and dehumidifying are accomplished either by passing air over a

cold metal surface, or by moving it through an air washer where it comes in contact with a spray of cold water. For the smaller comfort cooling installations (by which we mean the majority of installations in retail stores, shops, homes, individual offices, etc., running in size up to about 25 tons capacity), the use of air washers has not proved as economical as the direct cooling of the air by means of cold metal surfaces in the form of finned-tube coils. (See Figure 4.) The finned-tube coils are maintained at a constant low temperature either by the evaporation of refrigerant in the tubes, known as the process of *direct expansion*, or by circulating cold water through the tubes.

Unless an outside source of cold water is available, such as cold tap water or an artesian well, a mechanical refrigeration system is required in order to provide a constant supply of cold water. This involves a double hook-up, first a refrigeration connection from the condensing unit to the water cooling evaporator, and then a plumbing connection from the water cooler to the fin coil. As a result of higher installation and operating costs due to this double hook-up, the direct expansion method is the one most commonly used in small

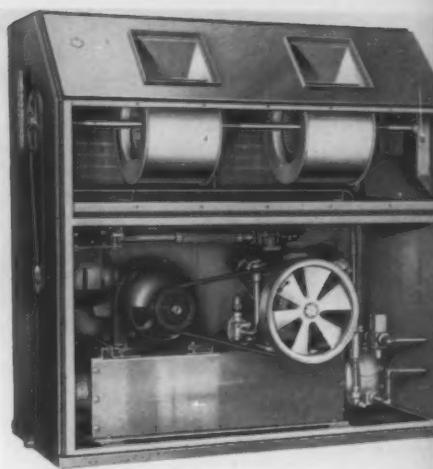
installations whenever refrigeration is required. Due to the ease with which water may be piped and its flow regulated, however, the use of circulating cold water, even when obtained through mechanical cooling, has a decided advantage in large multiple systems involving many cooling units fed by a single refrigerating plant.

Should a constant source of cold water (60 F or less) be available from an artesian well, city main, or other source, it is well to investigate this method of cooling for small and large installations alike. There are also cases where water cooling must be used for all types of installations in order to satisfy local building codes.

(2) CHEMICAL DEHUMIDIFICATION PLUS COOLING. In the process of chemical dehumidification, air is dehumidified without being cooled. This is accomplished by passing moist air through a chemical dehumidifying agent which has an affinity for moisture and, therefore, extracts it from the air. The nature of the affinity of the dehumidification agent for moisture takes several forms which may be summarized under the following headings: (a) *adsorption*, (b) *chemical reaction*, and (c) *absorption*. Silica gel is an example of an adsorption agent. This material is full of microscopic pores in which the vapor condenses and is held by physical attraction. Materials such as calcium chloride, alumina, and calcium sulfate, however, extract moisture by combining with it chemically to form a hydrated salt. Moisture may also be absorbed by concentrated liquid salt solutions or organic alcohols such as triethylene glycol.

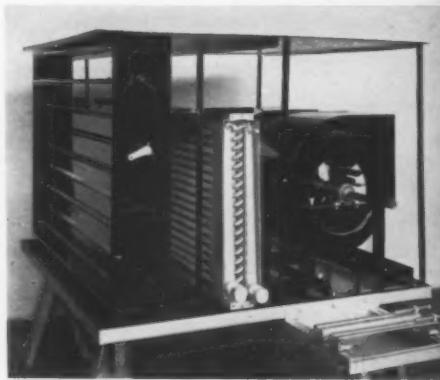
No matter which process of chemical dehumidification is used, heat is always liberated as moisture is removed from the air, thereby raising the dry-bulb temperature of the air. A great part of the heat is given off by the vapor as it condenses to a liquid in the process of being removed from the air. There may also be additional heat evolved due to *heat of reaction* or *heat of solution*.

In order to counteract the sensible heat which the air gains in the process of having its moisture removed by chemical dehumidification, it becomes necessary to reduce the dry-bulb temperature of the air either after dehumidification or simultane-



↑ FIGURE 5C. A typical 10-ton water-cooled self-contained air conditioning unit.

← FIGURE 5B. A 3-ton water-cooled self-contained air conditioning unit.



↑ FIGURE 6A (above) and 6B (below). Representative models of factory built cabinet units containing evaporator and fan and motor assembly. Capacity range is from 1 to 35 tons.



the air through an air washer in which a small quantity of non-refrigerated water is recirculated. If the air is initially at a low relative humidity, it will pick up moisture, the cooling effect of the latent heat absorbed as the water vaporizes causing a reduction in the dry-bulb temperature of the air in proportion to the amount of moisture added.

We are all familiar with early attempts at evaporative cooling where water was allowed to stand in a porous jug, and became cool by the evaporation of some of the water through the walls of the jug. Also, in desert-like areas, it is still customary to cover openings into buildings with moist cloths, thereby cooling somewhat by evaporation whatever air enters.

The modern method of evaporative cooling consists of passing a large volume of outdoor air through a special air washer in which a small volume of water is recirculated. The lowering of the dry-bulb temperature of the air is produced by the evaporation of water into the air. Inasmuch as the volume of water is kept small, its sensible heat contributes little to the change in air temperature. The actual temperature of the water, therefore, is not significant. This is different from the air washer described in method (1) above where a large volume of chilled water is circulated, and the air is reduced below its dew-point temperature. Here, no moisture evaporates into the air, and all the cooling is produced by raising the sensible heat content of the water.

Due to its limitations, the process of evaporative cooling is of value only where the outdoor relative humidity is low, and the indoor latent heat load small.

COMPONENTS OF COMFORT COOLING SYSTEMS: From the above discussion, it becomes evident that the components of a comfort cooling installation vary with the type of system used. All systems, however, have certain components in common. For example, in every case a method of air distribution is necessary, usually involving (1) a motor-driven fan, (2) ductwork, (3) a plenum chamber where the mixing of indoor and outdoor can take place, and (4) discharge and intake grilles. Whenever air washers are not used, air filters are desirable in order to remove objectionable impurities from

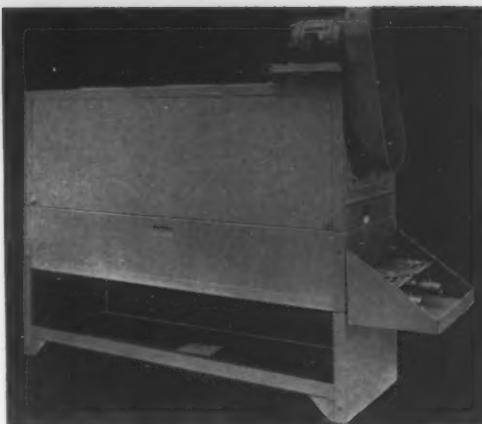


FIGURE 7. A central station type air conditioning system. This type is used in installations of 35 tons capacity and over.

FIGURE 8A. A common form of adsorption apparatus is shown at the right.

FIGURE 8B (below). A schematic cross-section showing how this particular type of chemical dehumidification system operates.

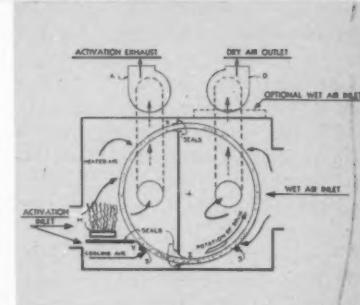


the air. Also, a method of automatic control is practically mandatory for all types of systems in order to insure trouble-free operation.

For small installations of the kind we are considering, however, the direct expansion refrigerant system is by far in most common use. We shall, therefore, concentrate our discussion on the components of a system of this type, while touching upon the components for systems involving chemical dehumidification or evaporative cooling.

DIRECT EXPANSION SYSTEMS: Equipment available for comfort cooling by direct expansion may be classified into three categories as follows:

(1) *Self-contained units*, which are factory assembled package units comprising all the components necessary for a complete comfort cooling system, such as, (a) condensing unit, (b) evaporator, (c) expansion valve, (d) fan and motor assembly, (e) filters, and (f) inlet and outlet grilles. (See Figure 5.) These units are available in sizes up to 5 tons capacity for installation within the room



to be cooled, and in sizes up to 15 tons capacity for remote installation.

(2) *Assembled lowsides*, which are factory-built floor or ceiling type cabinet units containing evaporator and fan and motor assembly. Expansion valve, filters, and grilles are optional equipment included by some manufacturers. Figure 6 shows representative models of this type of equipment. Capacities range from 1 to 35 tons.

(3) *Central systems*, where the assembly of the individual components is made in the field into a built-up casing. (See Figure 7.) This type of system is mandatory for large installations (35 tons capacity and over). Due to the lower cost of factory as-

Continued on page 68



ONE-TWO

Sales Punch

How one jab of frozen food promotion paves the way for a power-packed home freezer sales wallop

By Robert Latimer

LEADING into a housewife's kitchen with a selected line of frozen foods and then following through with a potent sales presentation on home freezer cabinets is proving to be an effective and profitable

sales program for Boark Products Co., Clayton, Mo. dealer for the Bishop line of home freezers.

This unusual Missouri firm was established early in 1946, to deal in home freezers, standard home refrigerators, commercial refrigeration, and a complete line of frozen foods.

Partners George Clark and William Boland look to the constant promotion of frozen foods in the wealthy residential area surrounding their store to create many home freezer prospects—and are paving the way with a "one-two sales punch" aimed at providing at least 300 active prospects by the time full-scale deliveries of the 16-foot Bishop home freezer are possible.

Heres how this prospect-finding system works.

A large stock of frozen foods is carried in ten Bishop freezers in the retail store which the partners operate. Each morning, the two men select one specific frozen food item, such as a quick-frozen pie, chicken ala king, pre-cooked desserts, or meat or fish when the latter are in stock. This item and its description,

Continued on page 69



Interior of the Boark store is carefully laid out for most effective display and sale of both frozen foods and home freezers.



Carroll E. "Borie" Lewis has been elected executive vice president of Perfex Corp.,



and in this capacity will be responsible for all general operations of the company. In his new position he will take over many of the duties formerly handled by the president. Mr. Lewis joined Perfex in 1944 as vice president and manager of the controls division. He previously had spent five years as general sales manager of the Delco Appliance Division of General Motors Corp.

John T. Casey has been appointed director of public relations for Jack & Heintz Precision Industries, Inc. Since completing duty with the Navy last February, Mr. Casey has been with the public relations firm of Ivy Lee and T. J. Ross, Inc. of New York City. Before the war, Mr. Casey directed his own public relations organization in New York City.

Alfred E. Stacey, Jr., air conditioning pioneer and one of the seven founders of Carrier Corp., has rejoined that organization as of Dec. 1. Mr. Stacey, who has been on active duty in the United States Navy with the rank of captain, will be process consultant to the sales division. In this capacity, he will devote major attention to the application of temperature and humidity control to industry.

M. H. Clarke has been appointed vice president and director of manufacturing of the Dayton Rubber Mfg. Co. His duties will include responsibility for the engineering, production,

laboratory, traffic, safety and plant protection divisions in all of the company's operations. Prior to joining Dayton Rubber, Clarke was president of the Lake Shore Tire and Rubber Company, Des Moines, Iowa

Ralph E. Hunt has been appointed works manager of Universal Cool-

er Division, International Detrola Corp., replacing C. T. Clyne, who recently resigned. Mr. Hunt was formerly associated with Ranco Mfg. Co., where he was factory manager of the thermostat division.

E. C. James, vice president of Sterling Refrigeration Co., has been appointed general sales manager of that organization.

William E. Anglin has joined the Dr. Pepper Co. national headquarters staff at Dallas as research engineer in the Dr. Pepper cooler and vendor department. He will be engaged in the research and further development of a complete line of refrigeration equipment for the Dr. Pepper Co. and Dr. Pepper bottlers. Mr. Anglin has been associated with Servel, Inc. for the past four years as the factory service supervisor for the electrical commercial department. During the war, Mr. Anglin was assigned to a number of special refrigeration projects, including blood plasma and penicillin cabinets, sub-stratosphere chambers and motor transit refrigeration. At one time he operated his own sales and service concern in Lansing, Michigan, where he specialized in the rebuilding of hermetically-sealed units on a national scale.

Tom Phillips, formerly with Automatic Products Co. and Detroit Lubricator Co., now is associated with Tesco Distributors, refrigeration parts and supplies wholesaler of Newark, N. J. Ted Yecies, partner in the

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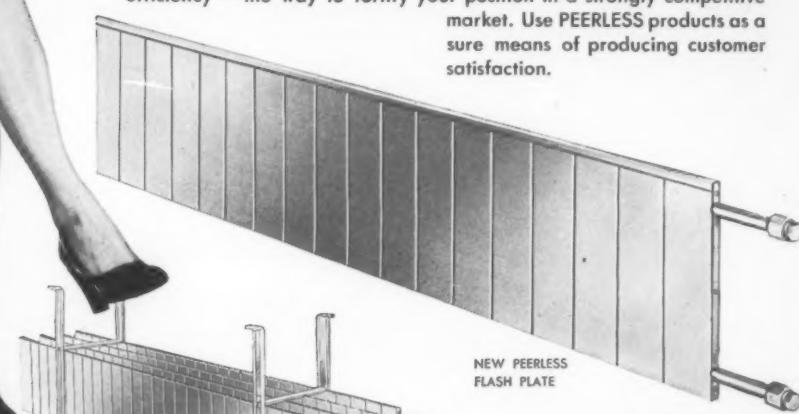
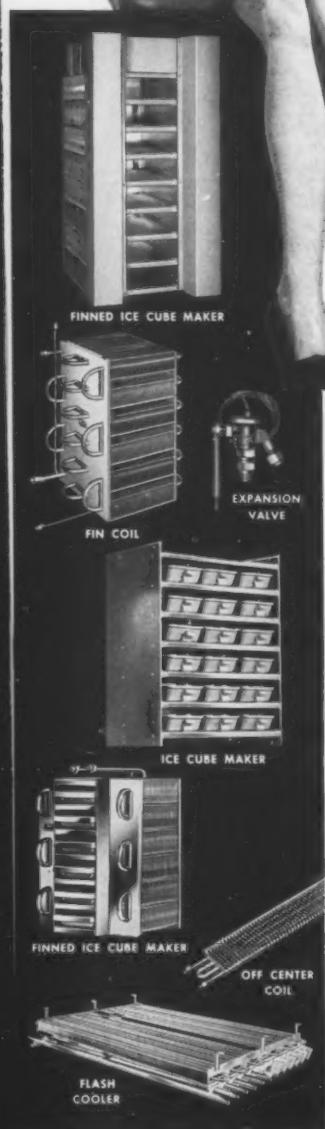


Arthur P. Shanklin, vice president and general sales manager of Carrier Corp., talks things over with his key sales executives, three of which have been newly appointed. Left to right in this high-powered huddle are O. W. Bynum, new manager of direct sales; John A. Gazelle, new manager of distributor-dealer sales; Mr. Shanklin; Walter A. Grant, director of application engineering; Leslie M. Beals, director of advertising and sales promotion; and Carl U. Spriggs, new assistant general sales manager.

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● PEERLESS FLASH PLATES are available NOW in QUANTITY for all low temperature applications such as locker plants, fixtures, domestic and commercial quick freezers, etc. Flat aluminum plates are mechanically bonded together by continuous copper or aluminum tubing. No joints—No leaks! Uniform distribution of refrigerant and non-ferrous high conductivity insure fast action and low operating cost. Aluminum provides own durable finish. Extreme light weight saves shipping costs.



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● Other PEERLESS products, illustrated at left, are designed to provide the highest degree of efficiency. The satisfaction your customers get NOW counts for future sales and profits—a solid reason for teaming up with PEERLESS!

SOLD THROUGH LEADING REFRIGERATION SUPPLY WHOLESALERS

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General Sales Offices . . . 2901 Lawrence Ave., Chicago 25, Illinois

AGREEMENT made this 1st day of January between
THE PENN BRASS & COPPER COMPANY and
all our customers

Witnesseth:

Whereas, the Manufacturer is engaged in the business of drawing the finest quality Copper and Brass tubing and marketing it under the brand name 'Superior'. Whereas, the customer is engaged as a wholesaler distributing our products, or as a manufacturer who uses 'Superior' tubing in his products.

Now Therefore, because of the many difficulties that both parties have undergone during the critical shortage, Penn will, to the best of its ability, fairly allot and ship substantial amounts of tubing to all customers.

We agree to maintain and constantly improve the quality of our products and increase the production of 'Superior' tubing as quickly as possible. Resolved therefore, we will endeavor to ring in the New Year with prompt delivery of 'Superior' products.

By _____

By *Superior*



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Write for latest bulletin today

'Superior' tubing is four ways better for it is seamless, clean and bright, dry, and easy bending. Resolve now to use 'Superior' for all your tubing requirements. Write for interesting circular, "After the Pressure is Off."

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CONTRACTORS

News • Activities • Plans

NARC and Union Officials Meet to Discuss Mutual Problems

FIRST steps toward a settlement of mutual problems of the refrigeration contractor and the union were taken at a meeting held on Dec. 12 in the Bismarck Hotel, Chicago. Representatives of the National Association of Refrigeration Contractors and of the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of the United States and Canada attended the meeting.

Present as representatives of NARC were Warren W. Farr, Cleveland, national president; Raymond Shock, Detroit, co-chairman, labor relations committee; Harvey Miller, Chicago; and Arthur Radtke, Cincinnati, a member of the labor relations committee.

Representing the union at the meeting were Martin P. Durkin, general president of the organization; John J. McCartin, general organizer; Leslie Dilg, general organizer; William Harbaugh, spe-

cial representative, and Arthur Olden, special representative.

"The growth of the refrigeration industry and post-war problems have made it imperative for the contractor, as representative of the industry, and the union, as representative of his employees, to cooperate in the training and education of employees to meet the demands of the many changes and types of new equipment developed during the war," a joint statement issued following the meeting declared.

"Mutual problems were discussed which covered all phases of the refrigeration industry. It was found that it will be necessary for joint cooperation to bring about stable conditions on a national basis to fully cover all of the various phases of the refrigeration industry.

"Another meeting between the parties is scheduled for the first week in January at Washington, D. C., to further explore the problems that confront the two groups."

LOCAL GROUPS FAVORED IN NEW NARC SETUP

An important step favorable to the formation of local organizations of refrigeration contractors and affiliation with the National Association of Refrigeration Contractors was adopted at the recent annual meeting of NARC in Cleveland.

Ten or more local refrigeration contractors, comprising an association, can now apply for NARC membership as an affiliated association by payment of a \$40 initiation fee, and annual dues of \$12 per local member per year, with a minimum, however, of \$200 annual dues.

For example, 10 local association members would pay \$40 plus \$200, or an average of \$24 each, for the initiation fee and annual dues. They could divide this up in any way they desired, as sometimes larger firms pay more than smaller ones.

Twenty local members would pay the \$40 initiation fee plus \$240 annual dues, or a total of \$280 for the first year. This is an average of \$14

per firm. Obviously, the more local members, the lower the average payment the first year. The initiation fee is paid only once—at the time of making application for NARC affiliated membership.

With now nearly 800 members in 38 states, including 17 affiliated associations, NARC is launching a membership drive to get members in the other eleven states, and an affiliated association in each of the cities having 100,000 or more population. Refrigeration contractors in smaller cities can also have a local association of 10 or more members by including nearby cities, and adopting a county or territorial name.

NEW DALLAS DEALER

Jack Arnold Stroud, Helen Rose Stroud and Mrs. D. C. May have incorporated the Southwestern Refrigeration Company, Inc., to operate a retail business in Dallas, Tex., with \$14,000 authorized capital stock.

NARC CONTINUES "FAIR TRADE" FIGHT

Complaints from members of National Association of Refrigeration Contractors concerning unfair trade practices of dairy and ice cream companies have been sent on to officials of Federal Trade Commission, Washington, who requested this information from NARC headquarters. The NARC action is in support of the formal complaint to FTC made by Refrigeration Contractors Association of Northern California, San Francisco, that some of these companies were engaging in unfair practices by selling refrigerated cabinets at cost in order to further their regular business.

National NARC headquarters has announced it is still interested in receiving complaints from contractor-members who have not reported as yet, and that all such information will be forwarded to FTC, with the member's name kept confidential.

WISCONSIN CONTRACTORS FORM ASSOCIATION

At a meeting attended by more than 100 persons from the refrigeration field in that area, the Wisconsin Refrigeration Contractors Association was organized recently. Headquarters of the new group are in Milwaukee, and Fred Boehme, of Fred Boehme, Inc., was chairman of the organizational meeting.

Nucleus of the Wisconsin association was a Milwaukee group of refrigeration men that had functioned in cooperation with the National Refrigeration Service Council during the war period. The Milwaukee association is affiliated with NARC. Activities planned include action to bring about an adequate state licensing law.

JAMES PERRY NEW HEAD OF DETROIT CONTRACTORS

James E. Perry, of James E. Perry Refrigeration, Ferndale, Mich., was elected president of the Refrigeration Contractors Association of Detroit for the 1947 term. The Detroit association is affiliated with NARC. Benjamin G. Hyatt, of Copeland Authorized Refrigeration Service, was re-elected vice president. Raymond G. Shock continues as executive secretary.

Wet, Dry Br-r-r-r-r

Three separate types of cooling facilities are required by the truly modern wholesale produce warehouse. This story tells you what they are and how one firm installed them

THREE basic types of storage—wet, dry, and very cold—are required by the modern produce warehouse, according to A. M. Okun, who with his father, Sam, operates the Sam Okun Produce Co. in Toledo, Ohio.

It is just such a refrigeration installation, typifying the current trends in the produce business, which has been made in the Okun firm's warehouse by the Toledo factory branch of McCray Refrigerator Co. Designed and supervised by branch manager Floyd I. Davison, this three-way installation was actually handled by Derwood Beach, the branch's service and installation manager.

The need for refrigerated storage space with both high and low humidity has long been a thorn in the side of the produce industry, Mr. Okun points out. Some produce, such as potatoes, require refrigerated storage but relatively little moisture, while

other produce such as greens of all types requires refrigerated air with a relatively high moisture content.

The need for ultra-cold storage facilities has developed only fairly recently, as more and more produce firms have heeded the handwriting on the wall and have undertaken the handling of frozen foods in addition to their regular items of fresh produce.

In the Okun company's warehouse this problem of three-way storage has been handled by the installation of three separate walk-in-coolers. The wet and dry coolers, both of which are held at 40°F, each measures 18x13½x9 feet. The low temperature cooler for frozen food storage is slightly smaller, and is held at -4°F.

Each of the three rooms will hold approximately two carloads of produce. Jamison cold storage doors are used on all three coolers.

Both wet and dry coolers are equipped with two Betz 1080 UC



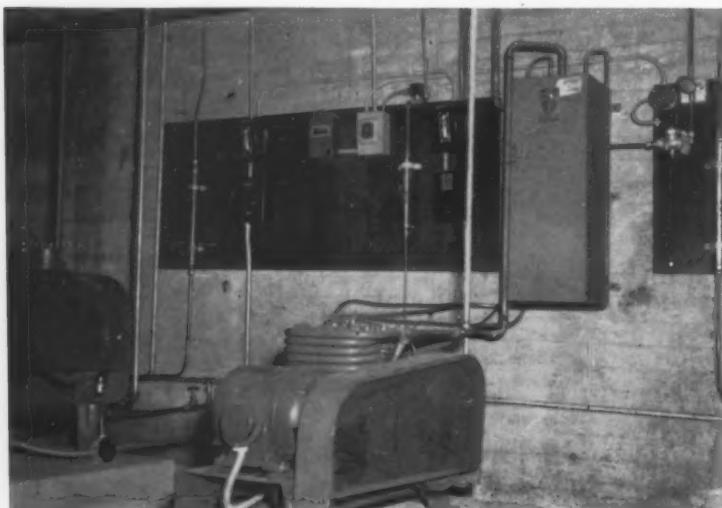
A. M. Okun (right) shows Derwood Beach, who supervised installation of the refrigeration system in the Okun produce warehouse, how fresh the moist storage room keeps leafy greens such as celery and lettuce.

unit coolers suspended from the ceiling and powered by 3-hp Universal Cooler compressors.

In the dry room only one blower is used, except when the second unit is cut in to aid in pulling a new load of produce down to the holding temperature. In the wet room, however, both blowers are used steadily in order to keep the humidity high for the lettuce, celery, and other greens which frequently are received packed in ice and need to retain all possible moisture.

This retention of moisture is an extremely important factor in produce merchandising, Mr. Okun explains, for it not only keeps this type of produce fresh in fact as well as in appearance, but it also keeps it up to full weight by preventing any dehydration of its natural moisture content. As this type of produce is customarily sold by weight in retail markets, full weight means full dollar value, and the wholesaler who can deliver produce in this condition is going to get the business, Mr. Okun declares.

Refrigeration for the frozen food storage cooler is provided by a 3-hp
Continued on page 54



Here is some of the equipment which provides refrigeration for the warehouse's three separate storage rooms. Note the neatly arranged control panel against the wall.

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PLANNED MAINTENANCE

By Earl W. Haefner
Manager, Parts and Service Dept.
Airtemp Division, Chrysler Corp.

MILLIONS of Americans who served in the armed forces learned at first hand that planned maintenance (preventive maintenance and corrective maintenance) played a vital part in modern warfare. To the soldier on the battlefield a breakdown of equipment can mean death.

To the owner of refrigeration or cooling equipment a breakdown can mean real dollar loss, prestige loss, etc. The need for preventive maintenance is neither peculiar to nor confined to refrigeration and air conditioning equipment. Virtually all types of mechanical apparatus require some periodic attention and adjustment to ensure economical and long-lived performance. Even the human body, that remarkable product of nature, has benefited through the discovery and application of preventive methods in medicine.

The time worn phrase, "An ounce of prevention is worth a pound of cure", is a truism that applies with equal force to both living organism and modern mechanical apparatus. Let us consider the factors involved.

In the early days of industrial development, business ethics as we know them today were generally nonexistent. Original business practice followed the common law doctrine of *caveat emptor*, "let the buyer beware." In today's modern business the product maker is jealous of his reputation and realizes that building a quality product and ensuring customer satisfaction with that product is a basic essential to continued success. This evolution in business ethics and marketing practice gave rise to the guarantee or warranty either expressed or implied in most products when offered for sale today.

Product Warranty

The guarantee may cover *quality* of the product or it may guarantee *performance* of the product. The distinction should be noted. By and large, the guarantee of quality is more often expressed than the guarantee of performance. This is particularly true of such products as automobiles, home appliances, air conditioning, refrigeration equipment, etc.

Of course, the guarantee of performance is actually implied by the reputation of the maker; however, it

That old saw about an ounce cure is especially applicable to business. Common sense like

is pertinent to observe here that in the aforementioned products, final performance depends very largely upon how well the product is delivered, applied, installed and adjusted by the organization making the sale to the purchaser or ultimate user.

To meet this need of ensuring product performance from the standpoint of the product maker, product seller and product buyer, various services are offered by the product outlet organization. Often these services are presented to the customer as though they were on a gratis basis for a period running concurrently with the product manufacturer's warranty.

Actually the majority of selling organizations set aside a service reserve on each sale to meet two contingencies; (1) to fulfill the product maker's warranty; that is, to cover the expense of replacing any parts found defective during the warranty period and (2) to provide the product buyer with services as needed during the warranty period.

SIX WAYS IN WHICH PREVENTIVE MAINTENANCE CAN PAY OFF



1. Ensure product performance and win customer satisfaction by spotting and preventing service troubles before they happen

2. Increase the sale of related products through increased knowledge of the customer's equipment and his requirements



3. Provide other new prospects through leads furnished by satisfied customers and through observation of their installations

ANCE as "Free" Service

vention being worth a pound of refrigeration and air conditioning can put dollars in your pocket

The services under (2) are frequently of a functional nature and arise from causes not necessarily related to product failure. Usually the purchaser is given no explanation of the distinction existing between the product quality guarantee of the manufacturer and the performance guarantee of the selling organization, nor is the purchaser likely to ask. He is primarily concerned in obtaining certain results or benefits which he was led to anticipate when he bought the product. Seldom has the retail seller provided the product buyer with a definite schedule of preventive services in return for the hidden amount charged against the purchaser in the overall price.

Failure on the part of the selling dealer to render adequate service to the customer on a planned basis (in return for the service reserve) is a common cause of customer complaint reaching the product manufacturer. Often when such complaints are investigated it is disclosed that the true

cause of customer dissatisfaction is reducible to faulty installation practices and/or lack of follow-through of service maintenance.

Unfortunately, some have looked upon the service reserve as an easy method of heavily padding the installed sale price of the product to the customer, while at the same time supplying a bare minimum of services. The ultimate end of such practice is always the same—loss of customer goodwill—loss of dealer prestige—loss of product sale.

A New Approach

The inadequacy and failure of the foregoing methods to ensure customer satisfaction with the class of products found in the refrigeration, air conditioning and kindred fields has given rise to a new angle of approach which to some may appear as a radical departure from existing practices. However, the more closely this new approach is examined and analyzed, the sounder it appears, both from the standpoint of business ethics and practical application. To better appraise it, it may be helpful to raise several questions:

(1) Why should refrigeration or

air conditioning equipment be sold on a basis of "free" service during the manufacturers' warranty period?

(2) Can a maintenance plan be sold to the purchaser at a nominal fee during the warranty period?

We have yet to hear a convincing answer to the first question. Careful analysis indicates that "free" service is a negative approach to an otherwise positive sales opportunity. Many people tend to be wary of "free" service, anyway. They have a healthy suspicion that "something for nothing" has a catch to it—as invariably it does.

Today the purchaser of a new automobile expects to pay for lubrication, tune-up adjustments and other maintenance services incidental to the operation of the motor vehicle. This practice prevails for many other products of a mechanical nature as well as unrelated fields of merchandise. For example, the purchaser of a suit of clothes does not expect to receive free pressing and cleaning service. Nor does the purchaser of a pair of shoes expect to receive free shining.

A well devised maintenance agreement, properly presented, can be sold to the purchaser of air conditioning and refrigeration equipment. The

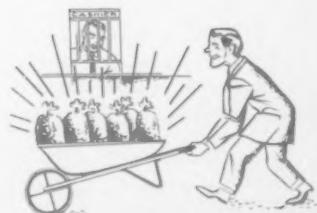
ANCE CONTRACTS CAN HELP YOUR BUSINESS

4. Reduce the necessary service reserve rate by at least 2%, as the customer pays directly for maintenance services



5. Balance service department operation between summer and winter seasons by minimizing hot weather emergency calls

6. Increase your profits through the medium of a generally improved overall operation made possible by these contracts



proper time to present and sell the maintenance agreement is at the time the product sale is consummated. There are three reasons for this:

(1) The customer is immediately available since he has just purchased the new product; therefore, no additional selling expense or canvassing is involved. More important, he is in a receptive mood, because he has an inner feeling of satisfaction and pride in his new possession. This is the opportune moment for the dealer to exercise positive selling suggestion in offering the maintenance agreement to the customer.

(2) When the customer is sold the maintenance agreement during the first year of product ownership, he is almost certain to buy an agreement the second year and succeeding years. He learns the value of the preventive service provided by the maintenance agreement the first year of operation, and thereupon regards the annual fee as a protective measure ensuring economical and satisfactory performance. His satisfaction with the operation of the equipment, as a result of periodic maintenance, convinces him that the yearly fee is a good form of insurance.

(3) Selling the customer the maintenance agreement on the spot provides a plus sale over and above the original product sale. Consequently, the service reserve setup can be smaller.

Some Practical Results

It is generally conceded that customer satisfaction and increased sales go hand in hand. The satisfied purchaser of a product becomes a booster for that product because it is human nature to tell others about the things that please us. Let me cite you the example of one installation.

An air conditioning unit was installed at a military camp. A maintenance agreement was sold at the time of installation. In this particular case the maintenance agreement sold for \$25. The maintenance agreement included a check, test and start service, a mid-season check and lubrication service, and an end-of-season inspection and shut-down service. The performance of the equipment was highly satisfactory and as was to be expected, no operating failures were experienced.

The commanding officer of the station was so favorably impressed with
Continued on page 76

AIR-COOLED COMFORT ON THE HIGH SEAS

ONLY completely air conditioned passenger ship on the seas is the Delta Line's "Del Norte," recently placed in service between New Orleans and the tropical east coast ports of South America.

Other luxury liners, notably the giant Queen Elizabeth and the S.S. America, have large air conditioning installations for public places, but the Del Norte is the first to provide air conditioning throughout the ship for crew as well as for passengers.

Owners, architects, engineers, and builders collaborated on the design for the liner's multi-state-room air conditioning system. Heart of this system is a Carrier 17MB-31-3-3 centrifugal type refrigeration system. Engine room equipment includes an F-11 compressor directly connected to a steam turbine, and interconnected with a sea water condenser and fresh water cooler.

The unit delivers about 130 tons of refrigeration to chill water to approximately 41°F, when operating at about 7,000 rpm. Refrigeration capacity control is from a direct acting temperature recorder with thermal element in water leaving the cooler to regulate turbine speed.

Refrigerant employed is trichloromonofluoromethane (Carrene No. 2). The condenser and the cooler are of the shell and tube design, marine type, with removable heads. Both have steel shells, and non-ferrous tubes and tube sheets.

The main dining salon is conditioned by a Carrier "Weathermaker," handling about 3600 cfm. This unit is provided with filters, cold water cooling coil, and steam reheat coil. A similar unit of smaller capacity handles the club

salon, and another unit conditions stewards, officers, petty officers, and crew's mess rooms.

The Carrier "Weathermaster" system serves all passenger staterooms, officers' quarters, and crew's quarters. It employs ducts sized to handle only the small quantity of air normally required for ventilation, yet it provides all of the features of a complete air conditioning system.

Primary (outside) air supply of not less than 25 cfm per person is distributed at relatively high static pressure and high velocity through a conduit system that has welded joints and flanged connections. Primary air is filtered and heated or cooled in a central station plant, and then circulated throughout quarters which were divided into port, starboard, and interior zones.

Weathermasters located in each stateroom are fed by these conduits and connected to a water circulating system which employs either cold water under summer conditions, or hot water under winter conditions.

To permit any passenger to regulate conditions to his individual requirements, there is a valve on each secondary coil which can be manually regulated to "cooler" or "warmer" settings by occupants. The valve adjusts the amount of cooling or heating carried out in the secondary coil by altering the gpm circulated. No mechanical equipment, other than these valves, is required in the conditioned area.

The Del Norte is the first of three sister ships built for the Delta line, which are identical in construction and in air conditioning equipment. Each has accommodations for 120 passengers and 124 crew members, and air conditioned holds for special cargo.

REFRIGERATION INDUSTRY

Memorandum

WAYNE CARVER DIES; WAS LOCKER EXPERT

Wayne H. Carver, 43, editor of *Locker Operator*, national magazine for the frozen food locker plant industry, died in Des Moines, Iowa, Nov. 25, of a heart attack, and was buried at



Collins, Iowa, his birthplace, Nov. 27.

Mr. Carver was widely known in the locker plant and refrigeration engineering industries. He was one of the founders of the National Frozen Food Locker Association, and was a frequent speaker at Locker association and refrigeration engineering meetings.

In addition to being part owner of Locker Publications Co., Mr. Carver was part owner of locker plants in Des Moines, Tama, Toledo, Chelsea and Garwin, all in Iowa.

He was a member of the American Society of Refrigerating Engineers, in which he was particularly active as chairman of the locker plants standards committee.

SHIPMENTS UP 20% IN OCTOBER

October shipments of mechanical refrigerators increased 20% to 280,000 units from 233,000 units in September, according to reports by Civilian Production Administration. This is 9% below the 1940-41 monthly average of 309,000 units.

AIRTEMP OPENS NEW RESEARCH LAB

Opening of a new Chrysler Corp. engineering laboratory at Dayton, Ohio, to be devoted to air conditioning, heating, and refrigeration research and development, has been announced by D. W. Russell, president of the Airtemp Division of Chrysler Corp.

Mr. Russell pointed out that the new facilities include, among other things, separate rooms for testing of packaged air conditioning units, room coolers, condensing units, rating of large and small compressors, and a room for testing the various types of heating equipment.

Three big cold rooms have been designed to maintain temperatures of zero, -70, and -240 degrees F, respectively. All three of these are lined with solid cork insulation, and the one which is designed to maintain -240 degrees F will be, it is reported, "the coldest spot ever created by mechanical refrigeration".

Because of the unusually low temperatures achieved at the new laboratory it

will also be able to carry on work in the "cold treatment of metals", a new field which took on growing importance during the war.

Another feature is the provision for supplying any type of electric current—either DC or AC, and in any cycle.

Also included are facilities for the construction of all types of working models of the various types of refrigeration, air conditioning, and heating equipment. In this department, Chrysler Airtemp engineers completed test models of the new "sealed radial compressor" which was exhibited at the show here and will be put into production as fast as materials and supplies become available in sufficient quantities.

Following regular Chrysler Corp. policy, engineers in this new laboratory have set up a series of refrigerator compressor test lines where the compressors undergo "breakdown tests". Some are run under full load, day and night, in order to determine their useful life, while others are taken off periodically, disassembled and checked for wear.

☆ ☆ ☆



A fractional-horsepower sealed compressor unit recently introduced by Chrysler Airtemp writes its name in frost as researcher W. A. Cotterman turns the valve. First tests were made in the new Airtemp engineering laboratory just completed in Dayton, Ohio.

SUPPLY OF FREON-12 THREATENED BY SUPPLIER'S STRIKE

The supply of Freon-12 refrigerant has been further threatened by a strike at the works of Kinetic Chemicals, Inc., main supplier of carbon tetrachloride. The following statement was issued by producers of Freon-12:

"Owing to a strike now in effect at the works of our main supplier of carbon tetrachloride, a shortage of this basic raw material will make it necessary to considerably curtail the production of Freon-12.

"The amount of carbon tetrachloride either on hand or in transit to Kinetic Chemicals, Inc., the manufacturer of Freon-12, is believed to be sufficient to permit continuing production at approximately 75% of capacity for the month of December, after which time production must be curtailed to approximately 20% of capacity. With a continued shortage of carbon tetrachloride, production after December at a greatly reduced rate is based on the amount of carbon tetrachloride which is available from other sources of supply.

"Should the strike last over an extended period of time, the problem of keeping essential refrigeration equipment for the preservation of foodstuffs in operation is a very important one, and we, as well as those in the industry, will be required to exercise judicious care in seeing that Freon-12 is used only for the most important needs."

BOWER ELECTED SHERER VICE-PRES.

Sherer-Gillett Co. has announced the election of L. O. Bower as vice president in charge of sales. Mr. Bower has been with the company three years.

HOLDING OF PRICES URGED BY ACRMA

Every effort to prevent price rises following the lifting of controls, and to effect all possible production economies and efficiencies in order to achieve that end, was urged as individual company policy throughout the industry, in an announcement made on behalf of the Executive Committee of the Air Conditioning and Refrigerating Machinery Association.

The statement for the Executive Committee, given out by William B. Henderson, executive vice president of the association said, in part:

"It was the consensus of the members of the Executive Committee, who represent many of the larger manufacturers of air conditioning and refrigerating machinery, that the companies of this industry, and, in fact, that industry as a whole, should en-

deavor in every possible manner to prevent price increases under the free economy resulting from the lifting of price controls."

MIDWEST JOBBERS TO MEET IN K.C.

Midwest members of Refrigeration Equipment Wholesalers Association will meet Jan. 10 and 11 at the Phillips hotel and the Muehlebach hotel in Kansas City, Mo.

An open meeting with manufacturers will provide a break in the closed sessions scheduled for the first day of the convention. Election of officers for 1947 will open this day's activities.

Special committee meetings and matters of unfinished business will occupy most of the second day.

Social activities include a luncheon, cocktail party, and banquet on the opening day of the meeting.

FOUNTAIN MAKERS DISCUSS STANDARDS

Topping the discussion list of the Soda Fountain Manufacturers Association at their 1946 annual meeting in Chicago was the standardization of ice cream sleeves as advocated by the Simplified Practice Committee of the International Association of Ice Cream Manufacturers. Members of the soda fountain group expressed a willingness to give consideration to these proposals.

Elected to the executive committee for the coming year were: L. G. Blessing, W. D. Jordan, J. L. Kaufhold, W. L. Molloy, and R. Lee Smith.

Representatives of the following firms attended the meeting: The Bastian-Blessing Co.; The Fischman Co.; Grand Rapids Cabinet Co.; The Grauman Co.; Robt. M. Green & Sons, Inc.; Holderle Bros., Inc.; Stanley Knight Corp.; The Liquid Carbonic Corp.; C.

Nelson Mfg. Co.; Phenix Soda Fountain Co.; United-American Soda Fountain Corp.

KELVINATOR BOOSTS PRICES BY 12%

Price increases for Kelvinator refrigerators averaging 12% across the line have been announced by the company.

Manufacturer's suggested cash installed prices, which include federal excise tax and \$5.00 for the Five-Year Protection Plan on the sealed unit, are compared with the previous prices in the table below:

CS7	from \$163.00 to
	\$179.95
CT7	from \$190.75 to
	\$204.95
CD7	from \$206.50 to
	\$229.95
C9	from \$238.75 to
	\$269.95
M7	from \$238.75 to
	\$279.95
MM9	from \$317.00 to
	\$359.95

MANUFACTURERS AND WHOLESALERS GET TOGETHER AT THE ALL-INDUSTRY SHOW



Social events during the All-Industry Show gave wholesalers and manufacturers opportunities to get together in off-hours. At left are Ed Lee, Lee Equipment Co., Detroit; H. W. Holt, Wm. Orr Co., Pittsburgh; R. K. Duncan, Duncan Supply Co., Indianapolis;

H. D. Stehle, Wm. Orr Co.; and Bob Shepardson, Standard Supply Inc., Worcester, Mass. Center: At the REWA luncheon, Frank Walter, Walter Refrigeration Supply Co., Houston; W. C. Messemer, Arizona Refrigeration Supplies, Phoenix; U. C. Boyles,

Photos by Austin Jones, Kerotest Mfg. Co.
Refrigeration Supply Co., Dallas; Merle Haynes, Pacific Factors, San Francisco. Right: E. Champion, Lifsey Distributing Co., Flint, Mich.; Mrs. F. H. Langenkamp, Jr., Indianapolis; Mrs. Jack Berry, Louisville, Ky.; Ed Ferrill, Kerotest Mfg. Co.



Left: George Ehman and Louis Merkel, Jr., Merkel Bros. Co., Cincinnati. Center: G. E. Graff and C. E. Whipple, Ranco, Inc.; John Holman, Allied Supply Co., Dayton,



Ohio; George Vermilye, Ansul Chemical Co.; Herman Goldberg, Herman Goldberg Co.; B. F. Harris, Harris Supply Co., Grand Rapids. Right: M. W. Voss, M & V Supply Co.,



Photos by Austin Jones, Kerotest Mfg. Co.
Oklahoma City; C. W. Harris, Harris Supply Co., Grand Rapids; Ted Chamberlin, United Commercial Sales Co., Los Angeles; G. C. Armour, G. C. Armour Co., Fresno, Calif.

COMMERCIAL DEALERS DISCUSS PROBLEMS

For the first time in the history of the commercial refrigerator industry, it is claimed, competitive dealers and competing salesmen have been brought together under one roof to consider mutual problems and responsibilities.

This experiment in co-operation was carried out at a dinner meeting of the Commercial Refrigeration Distributors Association of Chicago, whose sixteen members and their respective salesmen totaled nearly 100. W. H. Sudekum, president of the organization and local Hussmann manager, conducted the meeting.

J. H. Coolidge, president of Sherer-Gillett Co. and immediate past-president of Commercial Refrigerator Manufacturers Association, was the principal speaker. He stressed the importance of the salesman in the industry's complex production and distribution system, and his responsibility to both the manufacturer and the customer in carrying out the final and most important step in the distribution process.

Characterizing selling as a science fully as demanding in knowledge and technique as any other profession, Mr. Coolidge advised his listeners to rely less on clever methods or "tricks" and, instead, to fortify themselves with as much factual information as they can acquire about refrigeration and its numerous applications.

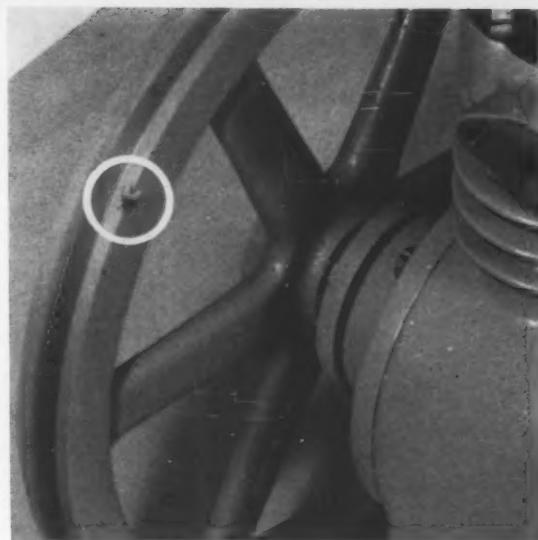
Frank Murphy, local Mc-Cray distributor and one of the founders of the local association, gave an interesting historical review of his experiences as a refrigerator salesman.

TEXAS JOBBER OPENS NEW ORLEANS STORE

Standard Brass & Mfg. Co., with headquarters in Port Arthur, Tex., and branches in Houston and Beaumont, Tex., and Shreveport, La., has opened a new branch in New Orleans. James Marshall will manage this new outlet.

Ful address of the new branch is 315 St. Charles, New Orleans, La.

'FLY-WHEEL' IS RIGHT!



Here's a real "fly" wheel, and no mistake! From Diceler Division of General Machine & Mfg. Co. comes this candidate for "most unusual picture of the year." While photographing one of Diceler's commercial refrigeration compressors, the photographer snapped this shot, which clearly shows how the "fly" got into the term "fly wheel."

RUBBER RESTRICTIONS LOOSENER BY CPA

Manufacturers of hard rubber refrigerator parts have been granted permission to use natural rubber as 30% of the content of such products under a Civilian Production Administration ruling which became effective Nov. 15.

Under the same ruling, manufacturers of deep freeze throat collars, ammonia hose, V-belts and vibration insulators and dampeners were authorized for the first time to use butyl in their products.

L.A. JOBBER LOSES \$100,000 IN FIRE

United Commercial Sales Co., Los Angeles parts wholesaler, suffered a loss of refrigeration equipment estimated at \$100,000 in a fire of undetermined origin recently. Damage to the building was estimated at \$20,000. The company has set up in a new location at 934 S. Maple St., and has asked manufacturers to replenish its stocks as rapidly as possible. Loss suffered in the fire was fully covered by insurance, according to A. H. Reinach.

MOTOR OUTPUT UP; BACKLOG UP, TOO

October production of fractional horsepower motors stayed at the September level of 1.9 million units, an all-time industry high, Civilian Production Administration reports, but the backlog of orders increased from 38 million units in September to 40 million in October. This represents 21 months' production at the present record rate. November motor output, now unreported, is expected to reach 2 million units.

NOMA ADDS LINE OF HOUSEHOLD UNITS

A line of household refrigerators and home freezers in 4, 6, 12, and 22 cu. ft. sizes are among the home appliances to be added to the line of products manufactured by the Estate-Heatrola division of Noma Electric Corp.

Estate will have the benefit of Refrigeration Corp. of America's experience in the low temperature field, for "Estate" home freezers will be manufactured in the same factories and by the same personnel as the "Frigid-Freeze" refrigeration cabinets for home, farm and commercial use.

FOREIGN MARKET UP, EXPORT HEAD SAYS

The outlook for sales of American manufactured products in the presently unoccupied countries of Europe undoubtedly stands at the greatest peak in history. J. W. DeLind, Jr., president of Borg-Warner International Corp., declared recently upon his return from a three-months' survey of markets for Borg-Warner products in the Scandinavian countries, Holland, Belgium, France, Spain, Portugal, Switzerland and England.

"At the moment," he said, "considerable difficulty is being encountered in the actual placing of commitments in this country due to overseas governmental restrictions in connection with the dollar exchange. This condition is expected to improve in most of the countries visited within three months."

"The peoples of Europe," he continued, "are well acquainted with the popularly advertised American trade names and, as a result, are demanding our products. Unfortunately, however, our inability to deliver goods has enabled some European manufacturers of lesser known brands to make inroads on business which normally would have been ours."

HOME FREEZER MEN DISCUSS PRACTICES

Discussion of public relations and trade practices highlighted the November business meeting of the Farm and Home Freezer Manufacturers Association held in Chicago.

The meeting was attended by a majority of the association's membership, most of whom reported that they were unable to get into capacity production, but that the market was absorbing all the units they could produce.

In regard to public relations, the members decided that an effort should be made through the publication of booklets and magazine articles to educate the public on what they may logically expect in a home freezer, and what they may not.

NEW PRODUCTS AT THE SHOW

♦ ♦ ♦

DUE to space limitations it was impossible for us to include in our December "Show In Review" issue mention of all the new products introduced to the trade at the Fourth All-Industry Refrigeration and Air Conditioning Exposition. Because of the industry-wide interest in these new products, however, we are devoting this page and several more to a completion of our "What's New" listing.

♦ ♦ ♦

"270" Refrigeration Control Featured By Penn Switch

Penn Electric Switch Co. introduced its "270" refrigeration control, featuring 2-pole construction, for 1 hp, 1½ hp and 3 hp motors. Features of the control were claimed as follows:

Double-pole construction for versatility of application, controlling two separate load circuits, etc. without use of magnetic contactors or line starters.

Direct reading, visible calibrated dial showing directly the operating cut-in and cut-out points.

Permanent setting, unaffected by vibration or mounting position; full range of differential adjustment in one model.

Two temperature ranges cover the entire field of commercial and air conditioning requirements. Control may be mounted in any position by means of two holes through back of case or by mounting bracket.

Fireproof Construction Is "Zerocel" Feature

National Gypsum Co. introduced its "Gold Bond" fireproof refrigeration construction with "Zerocel" insulation. This type of construction is particularly applicable for low temperature work. Employing complete-

ly incombustible materials, with the exception of the thin film of the vapor barrier which is entirely enclosed, this type of insulation means cheaper fire insurance in addition to increased safety, it is claimed. A built-up section showing this type of construction was a feature of the display.

New Peerless "Flash Plate" Shown

Peerless of America introduced a new Peerless "Flash Plate" line for all types of low temperature applications such as locker plants, zero and sub-zero, fixtures, domestic and commercial quick freezers, etc. The plates are constructed of flat aluminum plates bonded together by the copper or aluminum tubing which provides the refrigerant circuit.

High conductivity, uniform refrigerant distribution for fast freezing are among features claimed, in addition to light weight; the plates weigh approximately 2½ lbs. per sq. ft. Use of continuous tubing minimizes leaks and is said to insure low maintenance cost.

The company also introduced a model AA line of capacity boosters, constructed of seamless copper tubing and using Thermek heat transfer surface and an interior baffle to insure maximum refrigerant contact and fast exchange of heat.

Polar Hardware for Overlapping Doors

Polar Hardware Co. featured a line of super freeze hardware for overlapping doors. Made of forged brass, the hardware has adjustable roller strike and free handle which makes it easier to close doors, at the same time preventing loss of refrigeration and eliminating loud closing noises. The hardware is available in chrome and nickel plate, or in made-to-order finishes. Small size and medium size hinges for refrigerators and back bars also were featured.

Cutler-Hammer Shows New Alarm Switch

A new freezer alarm switch (Bulletin 9545) was introduced by Cutler-Hammer, Inc. Temperature actuated, the device actuates a light, buzzer or bell to warn of shutdown of freezer equipment; allowing time to have trouble located and repaired before food is endangered. The unit should preferably be connected in a circuit separate from the motor circuit and on low voltage.

Ratings—operating temperature 15 F (or to meet specifications). Maximum a.c. volts, 110—maximum a.c. load, 100 watt lamp. Maximum d.c. volts, 6—maximum d.c. load, 10 watt lamp.

Ace Cabinet Has New Fountain Line

Ace Ice Cream Cabinet Co. introduced its new line of soda fountain equipment at the Show, with other sections of its display showing its frozen food cabinets and with a dramatic cutaway of the latter unit spotted in the display to show various construction features.

Soda fountains are being made in both bottail and creamer units, the former in 5 and 6 ft. lengths and the latter in lengths from 10' 6" to 13' 6", both with bottle storage sections. Cabinets are of welded steel construction, with 4-in. of insulation and stainless steel exteriors. Ice cream compartments are full-flooded, with 100% prime surface plates integral with lining. Instantaneous soda and water cooler is provided; with one water and one or two soda draft arms.

Detroit Shows "573" Expansion Valve

Detroit Lubricator Co. introduced a new addition to its line of thermostatic valves—the No. 573, a device of ½ ton (Freon-12) capacity with the quality and operating character-

istics of its well-known No. 673 valve.

Designed for small commercial installations, No. 573 valve's double diaphragm gas charged power element is said to permit close superheat control at low suction pressures, and to provide motor overload protection in its simplest, most effective form, using only one power element.

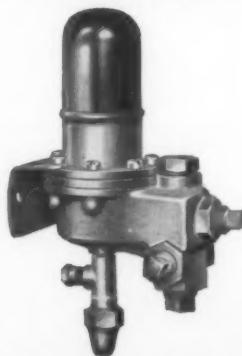
Weatherhead Shows New Manifold Assemblies

Introduced by Weatherhead for the first time were the recently developed packless 2 and 4 valve manifold assemblies for use on hermetic condensing units.

Featured was the newly designed "Simplicity" packless valves with only four moving parts, utilizing flat springs which allow an overall height reduction, and "in-line" connections on both the 2 and 3 way types.

Also displayed were large packed wing cap globe and angle valves made in sizes to $4\frac{1}{8}$ " O.D. which combine lightness in weight with maximum flow.

AMINCO Snap Action Valves For Multiple Temperature



Used with systems having more than one coil, operates from same compressor. Adjustable from 20° of vacuum to 63 lbs. pressure. . . . Differential 7 lbs. min. to 29 lbs. max. . . . Free from bellows strain. . . . Used with any refrigerant except ammonia. . . . For flooded as well as dry gas types or any combination. . . . A proven performer.

AMERICAN INJECTOR CO.

1481 - 14th AVE. DETROIT 16, MICH.
Van D. Clother, 1015 E. 10th, Los Angeles
G. I. Boone, Rm. 739, 1779 Broadway, N. Y.
J. C. Battles; 504 Bondi Blvd., Galveston, Tex.
W. H. Cody, Santa Fe Blvd., Dallas, Texas
Export: Borg-Warner, 310 So. Mich., Chicago

Tube Flaring Tool Shown By Penn Brass

Penn Brass & Copper Co. introduced the Papco tube flaring tool, listing at \$7.85 and available through refrigeration supply wholesalers. The tool handles sizes from $\frac{3}{16}$ " to and including $\frac{5}{8}$ ", and its positive clamping action is said to assure no "spring-out" of flare block under pressure. It has a plier-like handle for better leverage; swivel yoke is attached to the tool, always ready for use, and flush underside of tool permits close

flares of short tubes, a feature important to refrigeration men. The tool handles single flaring, double flaring and swaging with equal facility, it is claimed.

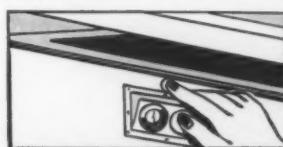
New Electrimatic Solenoid Stop Valves

Electrimatic Division of the Simoniz Co. introduced its new SL and SP solenoid valves, used primarily as liquid line stop valves and having Freon-12 capacities of 3 and 9 tons



If you thought last year's AMERICAN Home Freezers led the field in quality and design . . . just wait until you see the new AR-8 for '47, with its "years ahead" sales features!

- Dual-purpose freezing—super-coiled Quick Freeze section as well as Zero-Storage compartment.
- All-aluminum cabinet, heavily insulated, hermetically sealed; light, strong, rustproof, with beautiful white, baked enamel finish.
- Self-opening top door . . . just touch the button. A great sales feature for housewives.
- Visual temperature indicator and thermostat control, conveniently located.
- Storage bin for packaging materials; wire dividers for extra convenience in storage compartment.



Touch-Button Door Opening



Storage Bin for Packaging Materials

Write for colorful literature and information about American Farm, home and commercial Freezers, Arid-Air Bottle Coolers, Extensional Walk-In Coolers.

AMERICAN

REFRIGERATOR & MACHINE, Inc.
2700 University Avenue, N. E., Minneapolis 13, Minn.

of refrigeration. The valves are of packless construction, direct acting and tight seating and quiet in operation.

Direct current condensers are available for all applications of the solenoid valves requiring direct current.

Two New Unit Coolers Exhibited By Bush

A new line of CW (ceiling and wall) unit coolers and a line of elec-

tric defrost unit coolers were exhibited by Bush Mfg. Co.

The CW units are designed for walk-in boxes with low head room, as they occupy a minimum space. They are available in three models. The electric defrost coolers, designed as mates to the company's line of water defrost coolers, are intended particularly for low temperature applications. They are particularly advantageous in localities where water supply is limited or where water temperature is too low for economical defrosting.

Tyler Has Complete Cabinet Line Displayed

Tyler Fixture Corp. had models of most of its complete commercial line on display, together with low temperature cabinets produced by its Harder-Freez division.

Featured in the display was its self-service frozen foods display case, announced recently. This case is designed to do a real merchandising job for the merchant selling frozen foods, using fluorescent lighted signs and price listings, plus illuminated mirrors. Foods are stored at the sales level, with additional storage space in the cabinet base for restocking purposes.

"Curvette" Cooler Added By Kramer

Kramer-Trenton Co. introduced the "Curvette" unit cooler, for use in beverage counters, food chests, reach-ins, etc. A semi-circular unit, the cooler's fan and motor are located inside the curve of the coils. Tubing, mounting and drain connections are easily accessible. Btu capacities range from 1500 at 10° T.D. to 3000 at 20° T.D.

Farm Freezer Hardware Exhibited by Kason

Two-point latches (No. K-97) for farm freezer doors of the walk-in type were shown by Kason Hardware Corp. This dual latching is claimed to produce a perfect seal and to minimize the danger of cooling loss or the hazard of a warped, sagging door.

No release handles or push rods are required on the inside of the freezer door. The door is opened by means of a lever handle acting against a metal block which is furnished to the offset height of the door.

Interchangeable Parts Feature New G-E Units

A new line of CW condensing units replacing the previous CM models was on display in the booth occupied by General Electric Co.'s commercial refrigeration division.

Available in sizes from 1/6 to 1/2

LEAKPROOF

SOLDER

fittings

NIBCO

STAND *high pressure
high temperature*

TESTS show NIBCO WROT Fittings will withstand tremendous pressures or temperatures. So accurately formed by NIBCO patented processes, they form stronger solder joints with copper tubing . . . joints that can't be pulled apart or sprung leaks. Made in standard types and sizes in great variety.

Write for Catalog 614

NORTHERN INDIANA BRASS COMPANY
ELKHART, INDIANA

NIBCO **WROT** **Copper** **FITTINGS**

hp, this line features standardization of valves and pistons which makes possible interchanging between the various models in the line. Higher speed and forced-feed lubrication also are highlighted.

Not yet in production, these new models are expected to be available sometime early next year.

46 New Models in Chicago Seal Line

Chicago Seal Co. had 46 new models of valve plates and seals spotlighted at the Show, all of them incorporating the mechanical features which are standard throughout the company's line.

Particularly noteworthy in the new units introduced are models for Servel machines.

Water Cooler Designed for Small Office Use

A new water cooler (Model WA4D) embodying a hermetically sealed refrigeration system and a foot-pedal operated bubbler stole the spotlight in the Westinghouse booth.

A deluxe model, this cooler is finished in two-tone gray enamel with one-piece china top.

Other features include a high efficiency 9-pint cooling chamber, automatic adjustable water temperature control, use of capillary tubing to eliminate expansion valve, and sealed-in splash system lubrication.

Production on this model is expected to commence shortly.

Fedders-Quigan Shows New Unit Coolers

Fedders-Quigan Corp. introduced its Series C3 Fed-R-Kold unit coolers for walk-ins and other large refrigerated areas, and its Series C5 Fed-R-Panel unit coolers for reach-in and display cases.

Series C3 units have cabinets of die-formed aluminum, with rounded edges and corners; bottom of cabinet is insulated to counteract sweating. Series C5 units are of natural aluminum. C3 series units have Btu ratings of from 2200 to 20,800 at 20° T.D.; C5 units from 1660 to 12,000 at corresponding T.D.

Tenney Valve Has Many New Features

Tenney Engineering, Inc., displayed its TS-1 thermostatic expansion valve designed for standard commercial applications in air conditioning, display cases, commercial refrigerators, and similar uses.

Among the several new features claimed for the valve are:

It requires no feeler bulb, eliminating problems of feeler bulb location.

It is not affected by box temperature, entering warm air, or warm suction lines, making for greater accuracy in operation.

Extremely close superheat control can be maintained, since the valve responds to instant changes in both temperature and pressure at the same point in the suction line.

No external equalizer is needed, as compensation for pressure drop in evaporator or distributor is designed into the valve.

No stem packing is required; novel needle and seat design assure positive closure at all times.

Sizing of the valve to the job, normally done to prevent "hunting," is unnecessary.

No special installation is required; the valve may be operated in almost any position.

Spir-O-Freez Dispenser Is Fed From Top

Spir-O-Freez Co. introduced at the Show a frozen foods dispensing cabinet combining display and storage space, and incorporating a gravity feed system whereby packages are fed from a section in the top to keep the display area stocked. Display is of open type, for self service, and storage space for 1500 extra packages is provided, it is claimed.

Standard Has Stainless Steel Evaporators

Standard Refrigerator Co. revealed during the Show that its JS evaporators are now available in stainless steel. Units are supplied complete with door, front, hangars and control bulb clamp. Trays are not included. Features include continuous

stainless steel construction, built-in accumulator, continuous resistance welded construction. The built-in accumulator feature is said to make the units adaptable to expansion valve, high side float or capillary tube systems.

Vimco Displays Stainless Steel Line

Victory Metal Mfg. Co. introduced a line of reach-ins and a bottle box of all stainless steel construction. Three of the reach-ins are equipped with blower-type units, and the other has an 8-tray ice cube maker. Sizes of the units range from 30 to 65 cu. ft.

The bottle cooler is equipped with cold plate, blower and adjustable wire dividers, and is available in four sizes with capacities from 20 to 32 cases of 12-oz. bottles.

Nevinger Has New Conditioning Units

Nevinger Mfg. Co. introduced three new models of air conditioning units at the Show—a ½ ton air-cooled window unit, a ¾ ton air cooled floor type unit, and 2 ton water-cooled "low-boy" unit.

The ½ ton unit is designed to hang on the window sill rather than sit in the window, as do conventional window units. It has a ½ hp sealed machine that can readily be serviced or replaced.

Refrigeration Corp. Shows New Cabinets

Refrigeration Corp. of America introduced several new models of "Frigid-Freeze" low temperature storage and display cabinets. Show models all had aluminized exteriors, and will be available early in 1947, officials said.

New models include the L-307, a 30-cu. ft. low temperature reach-in storage cabinet; model 1000, a 19.1 cu. ft. net storage farm freezer cabinet, with three lift-type doors; and model F1000G, a frozen food merchandising cabinet for stores with 20 cu. ft. capacity and Thermopane sliding top for maximum visibility and faster sales.

Oakland Branch Branches Out



These pictures show what happened when California Refrigerator Co., parts and supplies wholesaler with headquarters in San Francisco, decided to expand its Oakland, Calif., branch. Purchasing the building in which they formerly occupied only one-third of the space, the company remodeled and redecorated it with the results shown. Above is the store's revamped exterior. The lower photo shows a portion of the order counter and lobby display. Carl Willhoff is manager of the Oakland store, which now boasts some 6,750 sq. ft. of floor space.



SELL 70 FREEZERS IN TWO DAYS

A carload of approximately 70 Hotpoint home freezers was sold in two days at St. Petersburg, Fla., in a recent merchandising test conducted by the manufacturer with Keesler Electric Co., long-time dealer.

St. Petersburg was selected as the test city for a number of reasons, among which was a desire to determine the effect of salt-tainted air on the cabinets' finishes, according to Floyd M. Slasor, Hotpoint refrigeration division sales manager.

Ten freezers were sold from a

"waiting list" before the first advertisement appeared; the balance were sold as a result of newspaper advertisements on three successive days. Radio spot announcements, window signs, and telephone solicitation were used in the campaign. Kits of packaging materials at \$4.95 each were supplied with the freezers.

Sixty-five of the sales were for cash, the balance were on time payments. In questionnaires distributed in connection with the sales drive, many prospects commented that the 4-cu. ft. unit used in the test was too small, and expressed preference for 8 and 12-cu. ft. units.

FARM WIRING PROGRESS OPENS VAST NEW MARKET FOR COOLING

Refrigeration machinery manufacturers are preparing for a greatly enlarged and accelerating demand among American farmers for home freezers and frozen food cabinets, milk coolers, walk-in refrigeration units and other refrigerating machinery needed for productive or storage purposes. The demand will open a large and substantially new market for the refrigeration machinery industry.

William B. Henderson, executive vice president of Air Conditioning and Refrigerating Machinery Association, points out that this virtually untouched farm market results from the extension of electric current to new subscribers during a period when frozen food cabinets and other refrigeration were not available, and to the new programs for farm electrification that are already under way. It is estimated in the industry that 300,000 quick freeze and cold storage units can be marketed to farm customers as rapidly as they can be produced.

Survey Points Way

ACRMA has just completed a survey of the dairy farming industry and estimated that a substantial portion of the large sum, placed at about one billion dollars, which farmers will spend for new farm and home equipment, will go for improved dairy farming facilities. This survey placed the immediate market among REA subscribers alone at 67,424 quick freeze and cold storage cabinets of 20 to 25 cu ft; 13,307 quick freeze and cold storage cabinets of the walk-in type; and 43,471 milk coolers.

Electrification programs by privately owned power companies and the REA point to the rapid extension of electric current to the 3,000,000 un-electrified farms of the country.

Refrigeration equipment manufacturers believe that because of the important part this equipment can play in preserving farm products, and raising the standards of living on the farm during off seasons, as well as allowing a more orderly marketing of some produce by the individual farmer, they are in a position to command a good share of the half a billion dollars which farmers are likely to spend for electrical equipment before the end of 1948.

JOB COST RECORDS . . .
Continued from page 29

tion is entered on the recap and you get a detailed comparison between actual and estimated costs. Where the short, our four-on-a-sheet Job Record is used, you simply recap the costs and enter them in the space provided on the left hand side for comparative purposes. (See illustrations).

When the job is finished, be it large or small, the profit, or loss, can be easily determined by filling in your contract price and subtracting your expenses. And by all means, do not forget your overhead expenses. They are as much a cost on each and every job as payroll or materials.

Figure 2 illustrates a Big Job. In this case the job is partially complete. A recap of the cost of completed operations is made on the reverse side of the Job Sheet. (See Figure 3).

The operations which have been completed have been recapped and entered on the back of the Job Sheet. By making a comparison with the estimate, the contractor can see the discrepancies and since the job is in

its early stages, he has an opportunity to do something about it.

By recapping only those operations which have been completed, and putting these actual costs on the reverse side of the sheet and then folding the sheet over and comparing the actual cost with the estimated cost, you get a very illuminating picture. (Note: Nothing has been done with those operations which are not complete. They will come later.)

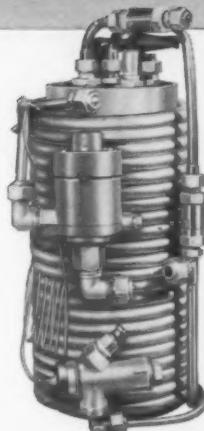
All items seem to have come out very well with the exception of the excavating. The excavating appears to

have cost much more than had been estimated.

Assuming the job is one on which a price has been quoted, the contractor has one of two alternatives, i.e., (1) he can absorb the loss; (2) he may attempt to get additional allowance for the excavating. No attempt is made here to recommend what course to pursue. The thing we are interested in is that the contractor knows at all times exactly where he stands—this he knows if he keeps a Job Cost Record of this type. Having such information in front of him, he is

IMPORTANT ANNOUNCEMENT

New Temprite Combination Water Cooler and Carbonator Now Available!



The completely new, highly versatile Temprite water cooler and carbonator does everything . . .

1. Instantly cools plain water.
2. Instantly carbonates water at low temperatures.
3. Dispenses cooled plain or carbonated water.

Extremely compact, this amazing combination unit includes water cooler and carbonator, the necessary refrigeration valves, check valves and fittings, motor, pump and relay assembly . . . ready for immediate installation! Requiring less than 10 square inches of base space and 15 inches in height, the new Temprite may be quickly installed in soda fountains, coil boxes and other beverage dispensers!

WRITE FOR COMPLETE SPECIFICATIONS



Pump-Motor Assembly consists of a corrosion proof turbine type water supply pump mounted integrally with a $\frac{1}{4}$ h.p. motor, complete with starting relay, ready for immediate installation.

Another First . . . for Temprite is the result of advanced engineering and a thorough understanding of field requirements. The new Temprite combination unit dispenses up to 300 glasses of either plain or/and carbonated water per hour . . . at a constant 40°F temperature.

Stainless Steel Carbonator Section, (left) may be installed separately, wherever a permanent, satisfactory means of cooling water is already in use. All stainless steel construction insures long life and freedom from metal contamination. No venting or loss of CO_2 gas. Operates on only 75 lb. CO_2 gas pressure. Operates independent of inlet water pressure.

TEMPRITE PRODUCTS CORP.

Originators of Instantaneous



Liquid Cooling Devices

45 PIQUETTE AVENUE

DETROIT 2, MICHIGAN

GENERAL CONTROLS
EST. ALLEN AVENUE • GLENDALE 1, CALIF.
Manufacturers of
Automatic, Pressure, Temperature & Flow Controls
FACTORY BRANCHES: PHILADELPHIA • ATLANTA • BOSTON
CHICAGO • DALLAS • KANSAS CITY • NEW YORK • DENVER
DETROIT • CLEVELAND • PITTSBURGH • HOUSTON • SEATTLE
SAN FRANCISCO • DISTRIBUTORS IN
PRINCIPAL CITIES

in a position to conduct his affairs in a business-like way, which means the profitable way. Perhaps if he does nothing else, he can put on a little pressure and effect a saving on some other operations, and still come out even with his originally estimated cost.

On any major repair job, or in the construction of any building or engineering project, certain situations may be brought to light which, if noted, can be the means of improved operations and greater profits from future jobs. Possibly it is in the esti-

mating of some phase of the work—possibly it is some method of handling materials, or maybe a new idea presents itself regarding construction which can be used profitably later on. These money-saving and money-making ideas should be jotted down at the foot of the page, where a special memorandum, or reminder, section is printed.

Please note how, under "Remarks" on the front of the Job Sheet, the memorandum which has been made. This contractor is going to have a complete record on this, and on other

jobs when they are finished, consequently he is not apt to be caught a second time because he will refer to this job and be reminded of the situation here, which has made the excavating cost him more than estimated.

Notice also the percentage of overhead, expense, 20% and the 10% which this contractor adds for profit. Again it should be mentioned that no recommendation is made as to the percentages you should use. You should add whatever percentage is necessary to cover your cost of being in business—your overhead.

You should know what that percentage is. Also, the percentage you add for profit is a matter for you to decide.

It is most encouraging now-a-days to know that contractors all over the country are becoming "cost conscious" and are keeping better records. It goes without saying that any contractor who keeps a good set of records, and therefore knows what his costs are; what his percentage of overhead is; and knows how he is coming out on each job, is bound to be a better business man and a better competitor than one who operates by "hit and miss" methods.

A BETTER THAN

LOOK FOR THE
CAN WITH THE
BLUE LABEL
WHEN YOU BUY
IT IN BULK!

9 to 1 PREFERENCE*

Profit from the experience of men who know the extra advantages of Davison's. Specify Davison Refrigeration Grade Silica Gel from your jobber. He has it in bulk or in factory-charged dehydrator cartridges.

*In a recent unbiased survey made among refrigeration service engineers, 91% . . . yes, more than 9 out of 10 practical, working service men who specified a brand, preferred Davison's!

The Davison Chemical Corporation
Progress through Chemistry



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Canadian exclusive sales agents for DAVISON SILICA GEL:
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WITH GRUNOW CARRENE METERS

It is false economy 4 out of 5 times to install an ordinary dehydrator. Genuine Grunow Meters have built-in dehydrator cans. Single seal of brazed phosphorous copper. Entire meter flow-tested. 50,000 in past five years. Satisfy your customers on the first call and have extra time for increased service profits!

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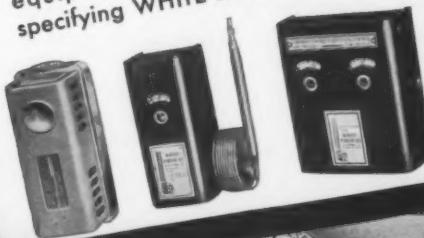
SET IT and FORGET IT!

THE DIALS of White-Rodgers automatic temperature and pressure controls for refrigeration and air-conditioning are marked clearly in degrees Fahrenheit or pounds of pressure.

No matter what the application, adjustment is quick, easy and accurate. No waiting is necessary for testing with thermometer or gage.

At any point where the dials are set within the range of the controls, the controls perform accurately without change in differential.

Because no product requiring automatic temperature or pressure control can be any better than the controls with which it is equipped, more and more air-conditioning and refrigeration equipment manufacturers are specifying WHITE-RODGERS.



WHITE-RODGERS ELECTRIC CO.

ST. LOUIS 6, MISSOURI

Controls for Refrigeration • Heating • Air Conditioning

WET, DRY, BRRRR . . .

Continued from page 38

Brunner compressor connected to a Kramer Trenton "Thermobank" unit. The Thermobank is set for a three-hour defrosting cycle. This system is controlled by means of a pressure switch, whereas the other two coolers are controlled by room thermostats.

All three compressors are mounted side by side on separate concrete bases in the basement of the warehouse, with lines running in the usual way

to the first-floor storage rooms. All switches, driers, controls, etc. are neatly arranged on a special control panel which the McCray branch makes up for each installation.

Prior to moving to this new location and installing the three coolers described, the Okun company had only one large normal-temperature storage cooler. Consequently it was impossible for them to handle frozen foods, and even their handling of fresh produce was seriously handicapped by the fact that there was no provision for separate wet and dry

storage. The single room was kept at a compromise point insofar as humidity was concerned, and all produce had to be moved fairly rapidly to prevent deterioration.

Now however, thanks to its up-to-date installation of refrigeration equipment, the Okun firm is prepared to do a really modern job of produce wholesaling, with better service for its customers and bigger profits for itself.

The Records Show . . .

**OUR PROFITS THIS YEAR WERE HIGHER - OUR
SERVICE WAS BETTER - BECAUSE WE USED
CHICAGO SEALS AND VALUE PLATES**



CHICAGO VALVE PLATES
Save time and work, too. Only refrigerator compressor valve plates with removable valve seats. Sizes for most compressors.



**CHICAGO GENERAL
REPLACEMENT SEALS**
Go on refrigerator compressors in less time, with less work, and cut down "call backs."

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CHICAGO SEAL CO.

20 NORTH WACKER DRIVE • CHICAGO 6, ILL.



VISOLEAK

detects even the smallest leaks before they cause damage to expensive refrigeration systems. Years of use prove it safe, economical, easy to use.

NEW CHARGING SET

The VISOLEAK Charging Set was developed to inject VISOLEAK, add refrigerant oil or re-charge sealed units. For use on all types of refrigeration systems without danger of introducing air or foreign matter.

Charging Set—complete with hoses. \$7.50
Filler only—with hoses..... 6.00
See your refrigeration supply jobber or write for complete information.



WESTERN THERMAL EQUIPMENT CO.
1701 West Slauson Ave., Los Angeles 44, Calif.

NEW FACTORY, OFFICES FOR MARSH CORP.

Jas. P. Marsh Corp., manufacturer of industrial instruments and heating specialties, has announced plans to start construction of a new factory and office building on a five-acre tract located at Howard St. and St. Louis Ave., in Skokie, Ill., a suburb of Chicago.

According to Barrett Scudder, president, the building will cover an area of approximately 100,000 sq. ft. and will incorporate the latest in industrial building design and construction. The building, a one-story unit, will be constructed of concrete and steel with cut stone facings, with monitor type roof over the factory space.

General offices will be air-conditioned with modern sound-proofing and lighting. The new building also will be used for extensive practical research on heating methods, to aid the company in compiling definite facts on heat control.

The new plant was designed by Graham, Anderson, Probst & White, architects, and will be erected by A. L. Jackson Co., general contractors.

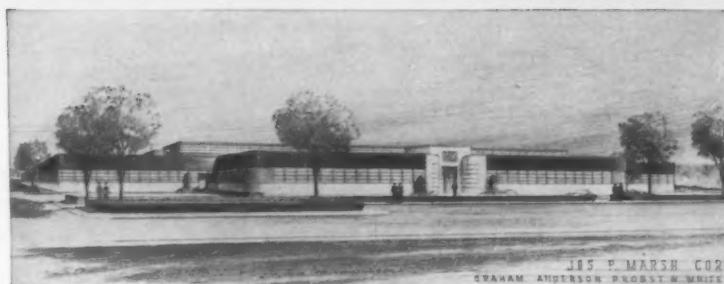
NEBR. TO STANDARDIZE JOB TRAINING

Wayne O. Reed, Nebraska state superintendent of public instruction, has named a joint committee of management and labor from various classifications of business and industry to set up standards of training for all war veterans taking on-the-job training. There has been considerable activity in this training in the refrigeration and appliance field. The committee was recommended at a recent conference of industrial, labor and veteran leaders in the state.

VIRGINIA'S LOCKER INDUSTRY EXPANDING

Twenty thousand families are now being served by locker plant facilities in Virginia, reports S. S. Smith, director of the division of dairy and foods of the state department of agriculture. Thirty-seven plants are in operation at the present time, he said, five others are under construction and several others await only the availability of materials.

Architect's Sketch of New Marsh Plant



JAS. P. MARSH CORP.
GRAHAM, ANDERSON, PROBST & WHITE

Here is the architect's conception of what the new Jas. P. Marsh Corp. plant will look like. The building will cover an area of approximately 100,000 sq. ft., and will be ultra-modern in design.

**The FAST, LOW-COST way
to assemble PIPE and TUBING
brazed with
SIL-FOS and EASY-FLO**



- 1 Non-ferrous marine pipe lines brazed with SIL-FOS.
- 2 Return bends and connections on large condenser—SIL-FOS.
- 3 Tubing connections on turbo-vacuum compressor—SIL-FOS.
- 4 Copper tubes and steel studs to steel condenser shell—EASY-FLO.
- 5 Return bends and connections on evaporator—SIL-FOS.
- 6 Heads to Monel metal bellows—EASY-FLO.
- 7 Constructing large copper condenser coil—SIL-FOS.
- 8 Walseal fittings with SIL-FOS inserts, simplify, speed-up and cut the cost of assembling non-ferrous piping.

SIL-FOS and EASY-FLO brazing satisfies every requirement of assembling ferrous, non-ferrous, or dissimilar metal pipe or tubing for many purposes. For these Handy & Harman patented low-temperature silver brazing alloys readily and reliably make joints that are equivalent to the parent pipe or tubing in all essential properties—strength—ductility—liquid and gas tightness—resistance to corrosion. What's more, you get these joints with minimum labor and cost because of the combination of fast action, low working temperature and extreme fluidity which features these alloys. And remember, SIL-FOS and EASY-FLO joints are maintenance free. Also, if need be, they can be quickly taken apart by the simple application of brazing heat.

So, from every angle it pays to braze with SIL-FOS and EASY-FLO in the manufacture of equipment and in the installation of pipe and tubing systems.

For complete facts—write today for BULLETIN 12-A. Ask especially for details about the new faster acting, lower cost EASY-FLO 45.



TEXACO

ELECTRIC REFRIGERATION UNITS

Capella OILS
REFINING UNITS

AIR CONDITIONING UNITS

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USE this convenient, accurate guide to make sure you sell or use the right grade of *Capella Oil* to meet the compressor manufacturer's specifications. There's no better way to assure complete customer satisfaction, with resulting good-will and repeat business.

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ming and sludging.

You can get *Texaco Capella Oils* in every needed viscosity — in convenient, re-sealable 1-qt., 1-gal., and 5-gal. containers that permit service engineers to keep unused oil in proper condition indefinitely.

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new ATTIC FAN TIMER *by Paragon*



HERE'S a new member of the Paragon family . . . the AF Series for timing attic and window fans. Entirely new in design, this timer is offered in two time ranges, 0-10 hours and 0-20 hours, each fully adjustable to any position on the dial . . . a real convenience for the user.

Equipped with a quiet Telechron motor and an improved switch, the timer is rated for high capacity, and will handle a $\frac{1}{2}$ HP motor. Beautifully finished drawn aluminum case, anodized, with dial and pointer protected by clear Plastacel.

Underwriter approved, all electric, no springs, mounts easily to Handy box or single gang switch box, or may be surface mounted with conduit connections into the bottom of the timer. The setting may be changed at will without harming the instrument. Timer motor runs only when timer is actually in operation.

Get your orders to your jobber—now and start planning installations early. Complete data sheet on request.

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AN
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TWO RIVERS, WISCONSIN

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WISCONSIN
BUILDERS OF ELECTRICAL EQUIPMENT SINCE 1905

JANUARY, 1947

THE PRACTICAL Refrigeration Engineering MANUAL

... by Harold Smith

XV. Storing and Dispensing Beverages

PART II

A UNIT cooler operating on a 20 or 25 F. T.D. can be used very satisfactorily in the beer pre-cooler. This enables the job to be handled with a relatively small evaporator, and gives a low humidity condition within the cooler.

In estimating the refrigeration equipment for this application, the following factors must be taken into consideration:

1. Heat leak.
2. Service load.
3. Product load.

HEAT LEAK LOAD

The heat leak load follows the usual formula: sq. ft. box area x "K" factor for insulation (usually consisting of 3" or 4" of standard insulation material), plus temperature difference (usually approximately 70 F. outside temperature and 35 F. inside box temperature, with T.D. of 35).

The resulting figure represents Btu/hour on a 24-hour basis.

SERVICE LOAD

The service load is usually very light. Some establishments, however, use their pre-coolers to store surplus bottle goods, and also for storage of some food products. Usually, however, the storage of other products, particularly foodstuffs, is legally prohibited in this space.

Where other products or bottle goods are stored, medium service load factors should be used.

With only bulk beer storage involved, light service load figures are generally used, as the cooler is only entered when loading or unloading and when new barrels of beer are to be tapped.

The product load is arrived at by taking the volume of beer in pounds x the specific heat (0.90 per lb.) x number degrees temperature is to be reduced. This gives the total products load, and this figure should be divided by 24 to secure Btu products load per hour, if total cooling is to be done over a 24-hour period.

CAN SPREAD LOAD

If, however, a supply for several days or a week is placed in the cooler, the cooling can be distributed over 48 or 72 hours, which would decrease the Btu product load per hour considerably. Below is a table on beer which may be helpful in figuring product loads:

PRODUCT LOAD FIGURES FOR BEER COOLING

Weight per gallon.....	8.15 lb.
Specific heat per lb.....	0.90
Specific heat—	
1 gallon—1 deg.	7.3 Btu
$\frac{1}{4}$ bbl. (8 gal.) 1 deg.	80 Btu including keg.
$\frac{1}{2}$ bbl. (16 gal.) 1 deg.	155 Btu including keg.
1 bbl (32 gal.) 1 deg.	300 Btu including keg.
1 bottle (12 oz.) 1 deg.	1.25 Btu
1 case bottles (24-12 oz.) 1 deg.	30.0 Btu

After securing figures for heat leak, service load and product load, add 10 per cent for safety factor; also add 33 $\frac{1}{3}$ per cent for 18-hour machine operation or 50 per cent for 16-hour machine operation. You then have a figure representing Btu per hour required by the condensing unit to handle the load.

If the evaporator used is

ATLANTA FIRM EQUIPS SELF-SERVICE STORE

Complete modern self-service refrigeration equipment has been installed in Leon's Groceria, Atlanta, Ga., by the Refrigeration Exchange, Inc., commercial refrigeration dealership. New equipment includes a 12-foot Tyler dairy display box and an 8-foot Tyler self-service frozen food cabinet.

In addition to Tyler equipment, the Refrigeration Exchange is dis-

tributor for Hill commercial cases, Harder-Free home and farm freezers, and Curtis compressors. The company handles custom-built storage rooms in addition to commercial cabinets, and operates a complete service department.

TWIN CITIES OUTLET

Koolaire, Inc., 210 Cedar St., St. Paul, Minn., has been appointed York distributor for the Minneapolis-St. Paul territory.

selected on a 20 F. differential capacity and the box temperature is to be held at 35 F. The condensing unit selected must have a capacity for the hourly load with a suction gas temperature of 15 F. refrigerant.

To select the evaporator to be used in the pre-cooler, take the total hourly Btu load requirements and choose an evaporator with capacity to transfer the Btu load required figured on a 20 F. T.D.

MULTIPLE HOOK-UPS

Frequently the condensing unit used to cool the beer in the pre-cooler is also connected to other tavern fixtures such as ice makers, bottled beverage coolers, storage refrigerators for food, wines and liquors.

When such a multiple installation is to be used, it is, of course, necessary for load figures to be compiled on all fixtures included in the multiple hook-up, and the combined total B.T.U. load requirements will then indicate the size and capacity of the condensing unit necessary to handle the installation.

These multiple installations reduce the over-all initial investment for equipment to quite a considerable extent, but often cause the refrigeration engineer much difficulty in getting all units operating at the desired temperatures and to also keep all evaporators defrosted and clean for efficient operation.

SIZING IS VITAL

Great care must be taken to properly size each evaporator so it can handle its particular part of the job efficiently; for with such hook-ups, an evaporator out of balance will cause no end of trouble and greatly interfere with a smooth, efficient over-all operation.

Usually special controls and valves are required with multiple

hook-ups to provide different and varied temperature control in the different units attached to the system. Because of the added complications involved, individual condensing units used with each fixture are generally more satisfactory, as each piece of equipment can then be operated at its proper temperature without great difficulty.

Individually-operated units also provide protection to the owner from the standpoint that should one unit break down, merchandise can be temporarily transferred to one of the other units until the broken unit has been repaired and returned to service.

INSTANTANEOUS COOLERS

Before ending the discussion on draft beer cooling, we should like to mention another method of cooling used with draft beer on many installations. This method of cooling is handled by instantaneous cooling units placed in the dispensing unit located in the bar and directly connected to the draft arms. There are several different instantaneous coolers manufactured for this purpose.

The cooling is fast and efficient, and works out particularly well on installations that do not employ basement pre-coolers. With the instantaneous-type cooler, the final cooling is all done at the bar at the time the beer is drawn for consumption.

The draft beer, in barrels, is placed in the basement or under the bar, and pipe lines carry the beer to the coolers when the draft arms are open and beer is drawn.

With this method of cooling, provisions should be made to place the barrels in the coldest location available, and in very hot weather ice is often placed on the barrel heads to help keep the beer within the barrel at as low a temperature as possible.

(Continued next month)



● It's easy, safe and profitable to service motor-starting capacitors "The AeroVox Way", because AeroVox listings are thoroughly cross-indexed, include both exact-duplicate and universal replacements, and are kept right up-to-date. At a glance you can pick the right type for any job. And that's what we mean when we say that AeroVox motor-starting capacitors are "Backed by the real Know-How."

● Ask Your Jobber ..

Ask to see the latest AeroVox motor-capacitor catalog. Select the exact-duplicate or universal type for that job. Your live-wire jobber has an adequate stock to take care of your needs.



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THE REFRIGERATION INDUSTRY

NOT ONE DROP OF MOISTURE



**IN A 50-FOOT COIL OF
REVERE DRYSEAL TUBE**

IF YOU sat down to write your own specifications for the ideal refrigeration tube, you would be almost sure to end up with a description of Revere Dryseal. It is made of deoxidized copper (99.9+% pure) for long service and maximum resistance to corrosion. Cold drawn with precision tools to exact diameter and wall thickness. Annealed in a controlled atmosphere to dead softness for easiest bending and working. Dehydrated until its entire interior is bone dry, then sealed at both ends to keep all moisture out.

Revere Dryseal Copper Refrigeration Tube comes in sizes from $\frac{1}{8}$ " to $\frac{3}{4}$ " O.D. with .035" wall, and is standard in 50-foot coils. You can use it not only for refrigeration and air conditioning installations, but

for heat control, bottled gas and other exacting services. It is sold by leading distributors throughout the United States. For help with difficult problems, call on the Revere Technical Advisory Service.

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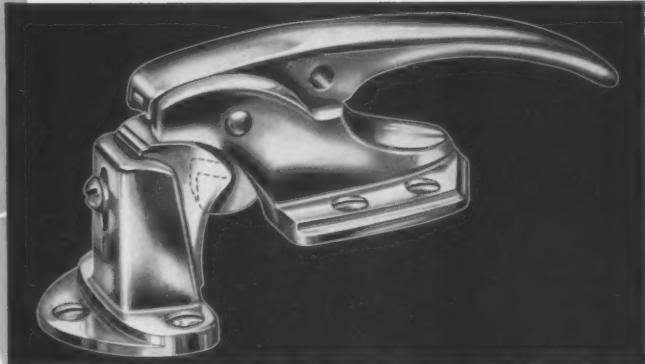
NEW STANDARDS of PERFORMANCE

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*Superior DESIGN and
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EXTRA ENDURANCE... FOR DAILY COMMERCIAL ABUSE

Every working part is designed to cushion shock. The rugged trigger-latch (A, B) is shaped for a direct blow on the strike, spring-cushioned through an off-center plate (C). The bolt (D) is short and heavy taking all stresses in one direction against a powerful coil spring. Engineered for many years of extra service on your commercial applications!



When it Trips, it GRIPS

It may be quite incidental that this lock incorporates a new, exclusive principle . . . that its action provides the strongest, most positive locking grip ever devised . . . that it operates at the touch of a finger . . . that it's available in a variety of sizes.

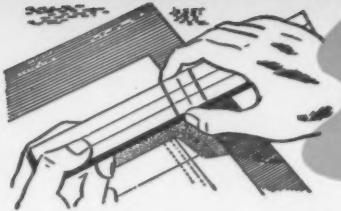
You are most interested in the long, trouble-free service it gives . . . in your customer's approval . . . in the credit it reflects upon your product and your company. And you always earn these extra dividends when you specify Grand Rapids Brass Company hardware.

America's Quality Line of
**COMMERCIAL REFRIGERATOR
HARDWARE**

Grand Rapids Brass Company

Makers of Dependable Refrigerator Hardware for over 40 Years

Grand Rapids 1, Michigan



New PRODUCTS

For further information on any of these products, simply list the key number at the head of each item on the special post card enclosed with this issue.

Cold Box Thermometer • P-1

Product: "Serviceman" thermometer in minus 30 F to plus 65 F range for cold box servicing.

Manufacturer: Jas. P. Marsh Corp., Chicago, Ill.

Features: Unit provides means of checking temperature conditions inside the box from a point outside with the cover or door closed. Has all-metal case, heavy-duty movement, non-slipping rubber suction cup feet. Also equipped with Marsh "Recalibrator" to readjust unit in case it is knocked out of calibration in field use.

Unit Cooler • • • • P-2

Product: "Curvette" unit cooler for beverage counters, food chests, reach-ins, etc.



Manufacturer: Kramer Trenton Co., Trenton, N. J.

Features: Cooler consists of bank of finned coils, curved in semi-circle with fan and motor placed out of sight inside curve of coils where moisture cannot drip on them. Motor is permanently lubricated; tubing, mounting, drain connections all are easily

accessible. Complete unit is made of copper or aluminum; no steel parts. In operation, radial air flow is said to assure uniform refrigerator temperature, efficient heat transfer. Unit measures 13" wide, 10 1/4" deep, 11" high; capacity 1500 Btu/hr. at 10° t.d., 2500 Btu/hr. at 15° t.d.

Water Chiller • • • • P-3

Product: Direct expansion water chiller with improved head design.

Manufacturer: Acme Industries, Inc., Jackson, Mich.

Features: Model DXG chiller has new refrigerant heads said to offer a variety in number of passes available to assure proper oil and refrigerant flow through tube to meet various capacity requirements. For shells 12 3/4" diameter or larger, heads for either one or two even refrigerant circuits have been designed. Water is circulated around the tubes and actual flow of water through shell is controlled by baffle arrangement in shell. Refrigerant control is by thermostatic expansion valve, eliminating need for refrigerant pumps, float valves, surge drums, large liquid receivers, oil separators, company assortments.

Plastic Rubber Seal • • • P-4

Product: Plastic rubber seal for display cases, etc.

Manufacturer: Continental Rubber Works, Erie, Pa.

Features: Material, known as Vitalic Seal, is applicable by manufacturers of display cases and cabinets. An uncured rubber of putty like consistency, it provides air-tight seal and insulation against heat, cold and moisture. Can be formed into any desired shape, and can be handled in long strips as thin as 1/32". Material is available in all widths from 3/8" to 17", up to 34" on special order; thicknesses range from 1/32" to 1/8".

Alarm Thermostat • • • • P-5

Product: Alarm thermostat designed to warn of any failure in frozen food cabinet.

Manufacturer: Control Division,



General Electric Co., Schenectady, N. Y.

Features: Thermostat initiates alarm in time to permit correction of troubles before food spoils. Contacts should be wired in series with indicating light, clock, or other device to indicate power failure or other trouble. In case of slow temperature rise, warning is given only when danger point is reached; if power fails or



YOUR CHANGE, SIR. Here's a new wrinkle in refrigerated vending equipment. It's a selective bottle dispenser offering 10 different flavors and equipped with an automatic change-maker that will handle coins up to 25 cents. Model shown holds 240 bottles. United States Vending Corp., Chicago, the manufacturer, is planning to produce a variety of "automatic stores" of this type, handling frozen foods, ice cream, beverages and non-refrigerated foods. The frozen food or ice cream vendor delivers a 30c or 35c package every 3 seconds, makes change simultaneously. It has push-button brand selection, built-in change maker.



Dry Beverage COOLER



39 in. high
30 in. wide
6, 8 or 10 feet long

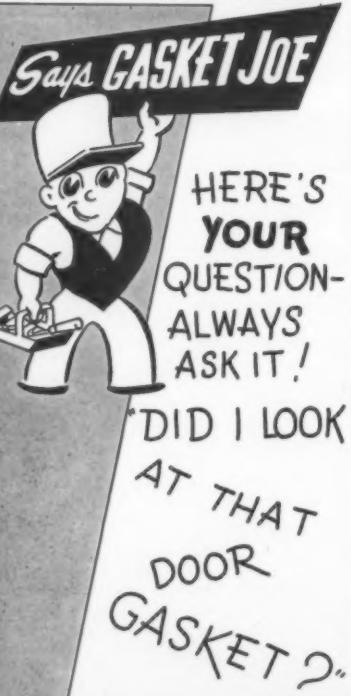
Beautiful stainless steel and polished aluminum outside with polished aluminum interior. Heavy duty fin-type coils give fast cooling and less frosting. Rugged construction, first quality materials. Stainless steel lids slide away or lift out. 8-inch utility shelf. Removable dividers inside. Toe space under edges.

**Immediate
Delivery**

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W. ALLEN ROGERS Industries

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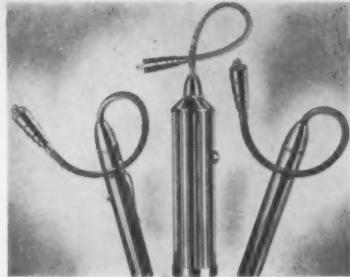
device itself breaks down, immediate alarm is given. Thermostat uses 110-volt a.c. and is sealed to keep out moisture and dust; calibration guaranteed within plus or minus 3 F.

Control Line • • • • P-6

Product: "270" series of pressure and temperature controls.

Manufacturer: Penn Electric Switch Co., Goshen, Ind.

Features: Controls have 2-pole construction feature; series includes "single" temperature, low side pressure, and "dual" controls, latter combining in one unit temperature or



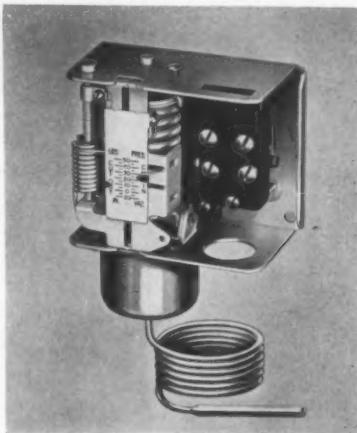
"Deluxe" models are 15" long and use two AA Penlite batteries; "Master" model, 16½" overall, uses two regular size flashlight batteries, thumb type switch. Prices are \$1.50, \$2 and \$2.95, respectively, less batteries.

Temperature Alarm • • • P-8

Product: Temperature alarm system for frozen food cabinets, other refrigeration units.

Manufacturer: Turner Brothers, Inc., Ferndale, Mich.

Features: Known as "Detect-O-Larm", unit consists of a simple thermostatic switch, powered by four dry-cell batteries. Said to require no servicing beyond replacement of batteries. Thermostatic unit is placed on bottom of refrigerator and wired to bell placed at any desired point, or to series of bells at several locations. Thermostat constructed of anodized aluminum; unit factory-set to sound alarm at 12 to 15 F. Price \$9.90, bell included.



low side pressure mechanism with a built-in high pressure safety cut-out. Claimed to be only control line incorporating a load-carrying, 2-pole construction, enabling control of polyphase motors, control of two separate load circuits such as two single-phase motors, "high-low" speed fans in walk-ins, display cases, etc. Control can simultaneously start the condensing unit and open the magnetic valve, manufacturer says. Units have sight-set scale showing cut-in and cut-out points.

Flex-Lites • • • • P-7

Product: "Flex-Lite" flexible tube flashlight.

Manufacturer: Aero-Motive Mfg. Co., Kalamazoo, Mich.

Features: Flashlights have flexible extension bulb-retainer which replaces conventional bulb assembly, permits getting light into hard-to-get-at places in inspection and repair work. Made of polished aluminum, waterproofed. "Junior" and "Junior

Frozen Food Cabinets • • P-9

Product: Frozen food display cabinets.

Manufacturer: Victor Products Corp., Hagerstown, Md.

Features: Cabinets will be avail-



able early in 1947, in three sizes: 10, 18 and 26 cu. ft. Units are completely self-contained, all-steel construction. Super-structure is optional.

Company states it intends to produce display cabinets at prices lower than those now in field. Deliveries will be through franchised distributors.

Water Regulating Valve • P-10

Product: Model 68-B water regulating valve.

Manufacturer: Automatic Products Co., Milwaukee, Wis.

Features: Provides accurate control of water to water-cooled condensing units, protection against trou-



ble due to dirt and lime in water. Employs molded composition seal on valve stem, instead of conventional needle and seat; seal moves across seat, providing self-cleaning "wiping" action to avoid troubles from dirt and lime in water. Unusually long stroke due to valve design is said to assure closer, more uniform control; direct-through flow construction reduces pressure loss to minimum. Restricting head pressure inlet orifice prevents compressor pulsations from affecting valve operation. Operating head pressure range 50 to 150 psi. Available in $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " inlet and outlet sizes for use on Freon, methyl chloride or sulphur dioxide systems.

Masonry Drill Bit • • • P-11

Product: Improved "Cyclone" rotary drill bit for drilling concrete, brick and general masonry.

Manufacturer: New England Carbide Tool Co., Cambridge, Mass.

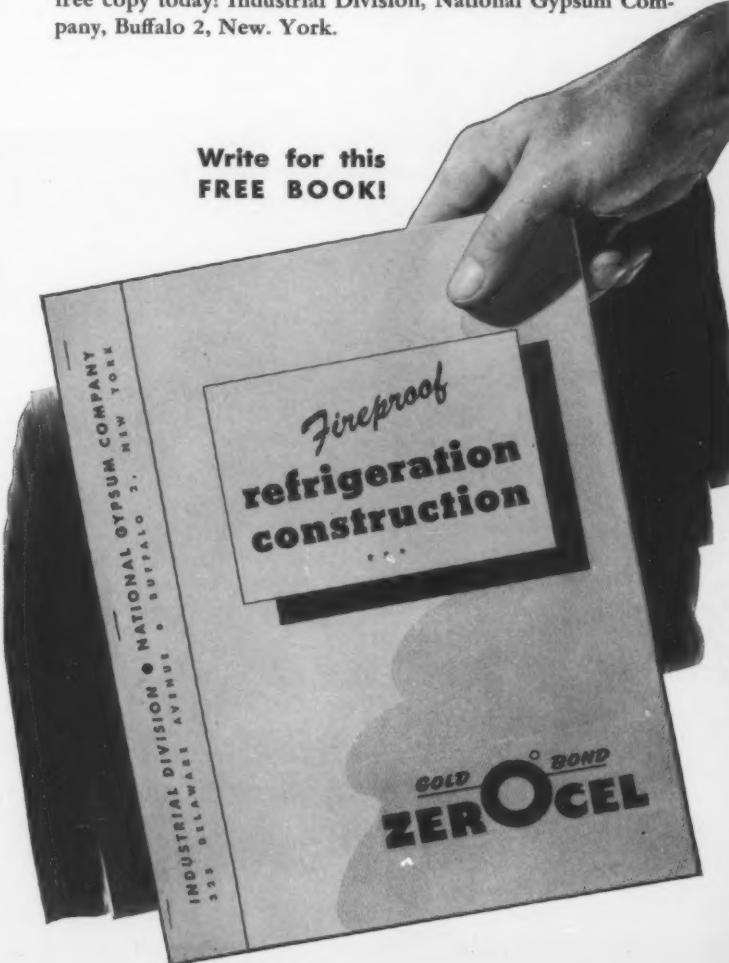
Features: Deeper flutes permit easier escape of cuttings or powder residue; shank of drill is heat treated, tip is copper brazed to shank for strongest bond between tip and shank. Bits may be used in hand brace.

Here's the first big improvement in low temperature insulation!

WE take pleasure in introducing our new Gold Bond Fireproof Refrigeration Construction. It provides greater insulating efficiency and permanence at even less cost than the old fashioned insulating methods now used!

This new method, built around Gold Bond Zerocel insulation, is a result of National Gypsum Company's twenty years experience in the construction industry. It is so versatile, that with only a few changes here and there, *it can solve almost any insulation problem* whether for locker plants, low-temperature storage rooms, cold storage warehouses, or processing plants. If you didn't receive this new booklet explaining Gold Bond Fireproof Refrigeration Construction at the Refrigerating and Air Conditioning Exposition in Cleveland, write us for your free copy today! Industrial Division, National Gypsum Company, Buffalo 2, New York.

**Write for this
FREE BOOK!**



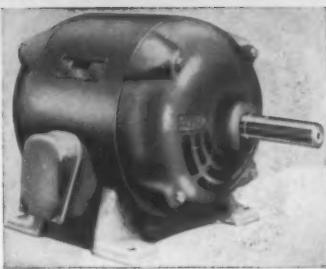
portable drill, or drill press. Kit of six bits available in popular sizes, or may be purchased in individual packages.

All-Steel Motor • • • • P-12

Product: All-steel squirrel cage induction motor.

Manufacturer: Westinghouse Electric Corp., Pittsburgh, Pa.

Features: All-steel construction—frame, feet and end brackets—makes possible motor which is 35% smaller in size than its predecessor, without sacrificing electrical properties.



Available in drip-proof, splash-proof and fan-cooled construction, in sizes from $\frac{1}{2}$ to 20 hp, and in a variety of voltages, frequencies and speeds.

Hand Cleaner • • • • P-13

Product: "Quickee" hand cleaner.

Manufacturer: Tudor Chemical Specialties, Inc., New York City.

Features: Requires neither soap nor water. Applied to hands, rubbed on, and wiped off with cloth. Contains lanolin, prevents cracking and chapping of hands. Removes grease, paint, oil, inks, glue, tar, other type stains. Packaged in jars for users' convenience.

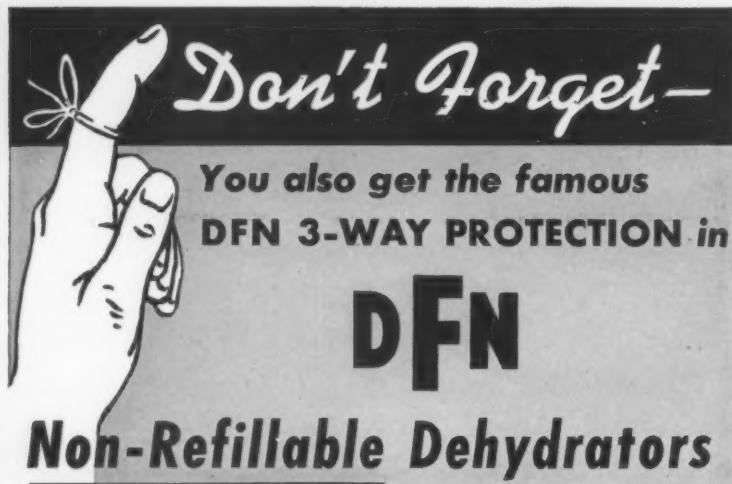
Household Refrigerator • P-14

Product: Model SE-946 "Shelvador" refrigerator with 9-cu. ft. capacity.

Manufacturer: Crosley Corp., Cincinnati.

Features: "Shelvador" feature providing 5 sq. ft. of extra storage space in racks on door interior. Food compartment has one-piece porcelain interior with rounded corners. Over-size freezer provides space for frozen

Don't Forget—



You also get the famous
DFN 3-WAY PROTECTION in

DFN

Non-Refillable Dehydrators

Remember—non-refillable dehydrators are used for "permanent" installation. That makes it important to get the 3-way protection of DFN Non-Refillable Dehydrators, namely: dehydration—filtering—neutralizing. This means more efficient protection for longer periods. And, best of all, it costs no more than other types. Full range of sizes for every need.



Sizes from $\frac{1}{6}$ h.p. to 3 h.p. ratings. See your jobber, or write for details.

McINTIRE CONNECTOR COMPANY, 257 Jefferson Street, Newark 5, N. J.



food and extra ice cubes. Meat chest holds 10 to 14 pounds. Non-refrigerated storage space is provided in tilting storage bin in base of cabinet. Two slide-out vegetable crispers. Two full-width plate glass shelves allow full visibility.

Lathe Turret • • • • P-15

Product: Tailstock-type handlever turret for increased lathe efficiency on jobs requiring a number of successive operations.

Manufacturer: South Bend Lathe Works, South Bend, Ind.

Features: For application to 9-inch South Bend lathes. Turret mounts on inside ways of the bed in place of the tailstock. Six-station turret head accommodates tools with $\frac{5}{8}$ -inch diameter shanks. Length of cut

at each station is regulated by means of an adjustable set screw. Stop mechanism is geared to operate automatically in unison with the indexing of the turret head.

Solder Dispenser • • • P-16

Product: "Kwikfeed" solder dispenser attachable to any conventional electric soldering iron.



Manufacturer: Sound Equipment Corp., Glendale, Calif.

Features: Attachable to any conventional soldering iron by means of an adjustable adapter leaf. Positive ratchet feed. Tube which feeds solder is adjustable so that solder can be fed to exact point desired, regardless of tip length. Dispenser is operated by thumb or finger pressure of hand holding the iron.

Year-Around Conditioner • P-17

Product: Entirely redesigned line of the standard Trane air conditioning unit called the "Climate Changer."

Manufacturer: Trane Co., La Crosse, Wis.

Features: Flexibility of arrangement and application through variety



of combinations of standard units without special designs or structural changes. Complete range of sizes in both single and double fan units in both horizontal and vertical types. To the heavy-gauge sheet metal casing

can be added heating coils for steam or hot water, cooling coils for direct expansion refrigerant or cold water, and humidifiers of spray, steam pan, or steam jet type. Either permanent or throw-away filters can be used. Can be used either singly or for multiple-unit installations. Specially designed compact fan permits smaller unit size. Special face and by-pass dampeners provided. Standard mixing box available as additional attachment. Capacities range from 450 to 975 cfm in smallest model to 7,500 to 16,250 cfm in largest model.

Fastening Device • • • P-18

Product: Quick-operating fastener designed for use on removable and hinged panels wherever accessibility is desired.

Manufacturer: Shakeproof, Inc., Chicago.

Features: Fastener consists of two parts: a stud held on to outer sheet by a special spring washer, and a receptacle which is easily snapped onto dimpled inner sheets or frames. Eliminates rivets or screws. Positive locking with one-quarter turn of this device.

THERMOBANK



Means:

**LOWER TEMPERATURES
HIGHER EFFICIENCY
HIGHER HUMIDITY
ATTENTION-FREE OPERATION**

With the Thermobank, temperatures of 32°F. to -40°F. and below can be maintained as easily and with the same freedom from frost as temperatures of 40°F. in a conventional system. Operating with practically frost-free coils, Thermobank maintains the desired low temperatures with higher back pressures, less temperature differential between air and coils; and consequently higher humidity, less drying and more efficient compressor operation.

Essentially, the Thermobank System of Automatic Defrosting consists of a forced convection cooling unit, automatic time controls and a heat reservoir. A portion of the heat extracted during the refrigeration cycle is banked in the reservoir from which it is released to the refrigerant during the defrost cycle.

Send for Booklet 16-R1 explaining Thermobank System and including useful low temperature information and time-saving rapid selection tables.

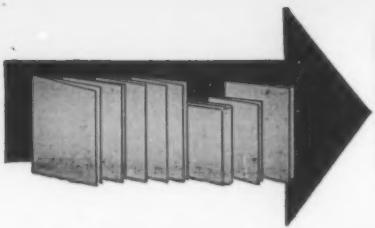
14

KRAMER TRENTON CO.

HEAT TRANSFER PRODUCTS

TRENTON 5 • NEW JERSEY

"IT'S THE
COILS THAT COUNT"
Specify KRAMER



Useful Literature

The publications listed below are available to readers without charge. Simply list on the postcard provided in this issue the numbers of the items you wish to receive, and send it to THE REFRIGERATION INDUSTRY, 1240 Ontario Street, Cleveland 13, Ohio. Your requests will then be forwarded directly to the companies concerned.

101—Automatic Controls . . . An indexed catalog made up of individual product brochures and covering the complete line of automatic control equipment manufactured by White-Rodgers Electric Co. Engineering and application data and prices included with the customary product descriptions and photos.

102—Electric Carbonator . . . A four-page folder describing the Lewis automatic electric carbonator for soda fountain application. Diagrams of line connections and method of carbonation supplement the photographs and specifications. Available from Scientific Research.

103—Service Aids . . . Four bulletins (1-A, 2-A, 3-A, and 4-A) describing two types of wire strippers, rosin core solders, and rosin fluxes. Complete descriptions, specifications, and prices of each item are

included. Available from Division Lead Co.

104—2-Pole Control . . . A four-page brochure describing, illustrating, and listing specifications of the new Penn "270" refrigeration control featuring 2-pole construction and designed for 1, 1½, and 3-hp motors. Available from Penn Electric Switch Co.

105—Diesel Cooling . . . A 20-page booklet (No. 351) on Diesel engine cooling systems, with pictures, diagrams, blueprints, and engineering data. Available from Binks Mfg. Co.

106—Controls, Accessories . . . A catalog covering the complete line of refrigeration controls and accessories manufactured by Cutler-Hammer, Inc. Book is divided into domestic, semi-commercial, and commercial sections. Installation and service hints are offered.

107—Safety Heads . . . Catalog No. 46 covering the line of pressure relief devices and related products offered by Black, Sivalls & Bryson. Also includes pressure relief requirements of leading pressure vessel codes.

108—Remote Indicators . . . A 12-page engineering bulletin on remote indicating and control systems, explaining what they are and what they can do. Exploded views and diagrams show the nature of transmitters, receivers, and indicators of these systems. Available from Allis-Chalmers Mfg. Co.

109—Special Motors . . . An eight-page, two-color catalog (No. 46-1) describing the line of rotating electrical equipment manufactured by Electric Specialty Co. Included are various types of special motors, dynamotors and converters, and generating equipment.

110—Plastic Finishes . . . Technical data folder on "Vinylite" technical coatings for commercial and industrial applications. These finishes are applicable to both ferrous and non-ferrous metals. Available from Watson-Standard Co.

111—Name Plates . . . An eight-page folder, profusely illustrated with actual photographs, covering the line of etched and lithographed metal name plates, panels, dials, scales, etc. manufactured by Premier Metal Etching Co.

112—Industrial Coatings . . . A visual index showing the numerous industrial applications of "Bitumastic" protective coatings for corrosive prevention. Available from Wailes Dove-Hermiston Corp.

NAMED NATIONAL CARL-CRAFT OUTLET

The Kennedy Co., Detroit, has been named national distributor for the "Ultra-Cold" home freezers and commercial frozen food cabinets manufactured by the refrigeration division of Carl-Craft Co., Los Angeles, according to Charles R. Kennedy, Jr. The freezers are available in six sizes of from 5 to 33 cu. ft. Exclusive dealer franchises will be set up in each territory.

FLORIDA CARRIER FIRM BUILDS NEW HOME

Florida Weathermakers, Inc., Carrier air conditioning distributor, Jacksonville, Fla., is constructing a new building on Hendricks Ave. between Cedar and LaSalle Sts. Of one-story fireproof construction, the building will house offices and shop. It is planned to add offices on a second floor later. Vernon A. Kelly is president of the company, which has been in business in Jacksonville since 1937. Former quarters of the company were at 805 Hogan St.

STANDARD

Prime Surface COLD PLATES

For Maximum Refrigerating Efficiency



THE STANDARD-DICKERSON CORP.

46-76 Oliver Street • Newark 5, N.J.

STANDARD KNOWS REFRIGERATION

Copyright 1945 by The Standard Dickerson Corporation

In
there
pitchin' . . .

. . . and you'll never be caught away from the stake on *any* repair assignment, when you use genuine Kelvinator-made parts.

For behind every Kelvinator-made part—as behind every Kelvinator complete unit—stands the skill and experience of 30 years in refrigeration . . . years which have seen Kelvinator become the accepted standard of quality. Order *genuine* Kelvinator-made parts from your nearest Kelvinator parts depot.

DIVISION OF NASH-KELVINATOR CORP.
Detroit, Michigan



Kelvinator



CONDENSING UNITS OPEN AND SEALED

COMFORT COOLING . . .

Continued from page 32

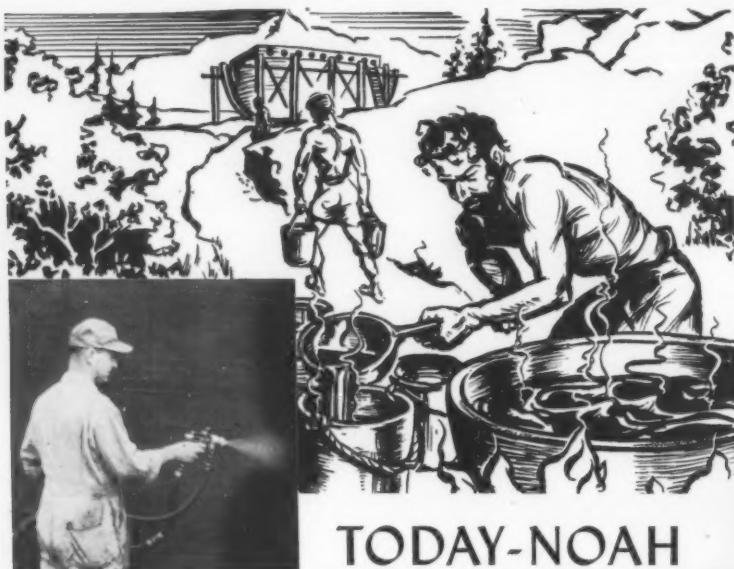
ssembled units, however, a central system is rarely used in smaller installations.

Self-contained units are becoming more and more popular due to their ease of installation and their mobility, should the occasion arise where a change of location becomes necessary. An important advantage of units of this type lies in the fact that they are completely hooked-up and

tested at the factory, requiring only electrical and plumbing connections for installation. Mass production methods, especially in the $\frac{1}{2}$ and $\frac{3}{4}$ ton capacity air-cooled and the 3 and 5 tons capacity water-cooled sizes, have brought the prices of self-contained units down to the point where it often becomes more economical to install several small self-contained units than one large unit of another type. Also, these small self-contained units are adaptable to many types of enclosures without extensive alterations for duct work. For the reasons

outlined above, the self-contained unit is very suitable to the small comfort cooling installation of the type we are discussing, and its increasing popularity in the future seems very likely.

CHEMICAL DEHUMIDIFICATION SYSTEMS: Figure 8 illustrates a common form of adsorption apparatus, the Bryant rotary dehumidifier. The adsorbing medium is silica gel contained in a rotating drum. The air to be dehumidified passes through a portion of the surface of the drum's circumference, and gives up some of its moisture to the silica gel. As the drum rotates it brings the moisture-laden gel into a compartment in the apparatus where it is reactivated by means of a stream of heated air. Heat for the reactivation process is supplied by gas burners, high pressure steam, electric strip heaters, or any other suitable source of heat. From the reactivating chamber the rotating drum brings the dried silica gel into a cooling section, and thence into the moisture-adsorbing section of the apparatus. Inasmuch as the rotation of the drum which holds the silica gel is continuous, a constant supply of



TODAY-NOAH Would Spray His Asphalt COLD

The MODERN way to adhere and seal insulation blocks and vapor-seal membranes is to spray adhesive COLD, right from the barrel, with modern compressed air equipment. You save time, muss and fuss—and get a better job at less labor cost than with traditional HOT binders and fire-hazard methods. Owners and contractors both benefit.

Laykold* INSULATION ADHESIVE

is asphalt formulated to apply COLD—by spray, brush, squeegee or trowel.

1. Will not burn—contains no inflammables.
2. No fire hazard to job—no burns for men.
3. No fumes to contaminate stored products.
4. Costs less to apply—faster, cleaner.
5. Sets tacky and ductile—not brittle.
6. Adheres to any type of dry surface; combined with aluminous cement, it adheres to damp walls and floors.
7. Self-heals nails, skewers, seams, cracks.
8. No cracks from vibration or stresses.

LAYKOLD WEATHERCOAT, troweled on, seals insulation permanently moisture-proof, indoors or outdoors. LAYKOLD MASTIC covers any type of sub-floor—is impervious, easy-to-clean, enduring, waterproof and noiseless—the ideal refrigeration floor.

All LAYKOLD PRODUCTS are used at atmospheric temperatures.
Specifications and prices on request.

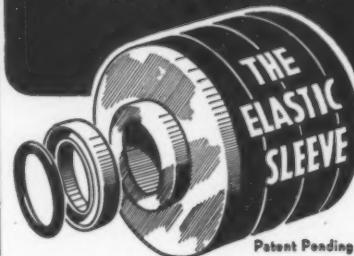
*Reg. U. S. Pat. Off.

AMERICAN BITUMULS COMPANY

200 BUSH STREET • SAN FRANCISCO 4, CALIF.

E. PROVIDENCE, R. I. • BALTIMORE, MD. • COLUMBUS, OHIO • ST. LOUIS, MO. • BATON ROUGE, LA.
TUCSON, ARIZ. • LOS ANGELES, CAL. • OAKLAND, CAL. • SEATTLE, WASH. • SAN JUAN, PORTO RICO

**COMPARISON
WILL PROVE
IT'S BETTER!**



"The Seal of Approval"

Write for Stock and Price List. Learn how you can save by eliminating "call backs".

**TEMPERATURE
Control Devices**
NEW HAVEN 15, CONNECTICUT

THE REFRIGERATION INDUSTRY

freshly dried adsorbent is made available, and an uninterrupted flow of dehumidified air is made possible. The dry air then passes through a cooling coil (not an integral part of the apparatus) where its dry-bulb temperature is reduced to make it suitable for introduction into the space to be conditioned. Cold tap water or well water is often used for this purpose, inasmuch as the temperature of the cooling medium need not be very low, no dehumidification by cooling being required. With a properly designed cooling coil, the leaving air temperature may be economically dropped to within 6-8 degrees of the entering water temperature.

In a liquid absorption type of system, such as the Rogers-Research triethylene glycol dehumidifier, the moist air passes through a fin coil over which concentrated triethylene glycol is sprayed and within which cold water circulates. The glycol absorbs moisture from the air while raising its dry-bulb temperature. At the same time, the cold tap or well water circulating within the tubes of the coil lowers the dry-bulb temperature of the air. Part of the glycol is continuously drawn off into a concentrator where the moisture it has absorbed is driven off by means of heat. This makes the process fully automatic.

EVAPORATIVE COOLING SYSTEMS: A popular form of evaporative cooler is known by the trade name of "Capillary Conditioner". This is a type of air washer where the presence of a mat of spun glass elements breaks up the water into very fine particles, thereby providing an effective vehicle for the rapid evaporation of moisture into the air.

ONE-TWO PUNCH . . .

Continued from page 33

price, etc., is passed along to four full-time telephone girls, who spend eight hours a day telephoning a selected list of prospects in the immediate vicinity.

Lists of potential freezer buyers include names turned in by regular shoppers in the retail store, who are asked to do this by their salespeople, lists supplied by manufacturers, commercially purchased lists of residents

with children, etc. Maintaining a supply of new names is a serious business with Boark, and the partners patiently develop new lists as the program moves along.

Telephoning from 25 to 40 women per day, apiece, the four girls courteously explain that this is St. Louis' only 100 per cent frozen foods store calling, and suggest that the lady of the house allow Boark Products to deliver the specific suggested item for use that day. With strong emphasis in frozen foods developed in St. Louis by quick frozen bakery doughs

and similar specialty items, the store gets an excellent response.

Those housewives who accept the suggestion are listed on another schedule, which goes to the delivery department. A recently acquired refrigerated one-ton panel truck is then stocked with at least two samples of every frozen food item in stock.

The truck is driven by a frozen foods expert doubling as a driver, who is actually Boark's star home-freezer salesman.

Following a tight schedule of appointed deliveries, the salesman calls



The Low-Temp Patrolmen!

THAWZONE and **TRACE** are two "musts" in protecting refrigeration systems and keeping them functioning perfectly with the minimum of attention.

THAWZONE, in new, reconditioned or old systems, has a two-fold purpose: (1) To destroy moisture already present and causing trouble, (2) as a safeguard against future trouble in systems now functioning satisfactorily. **THAWZONE** also removes other trouble-causing elements such as oxygen (air) and acids.

TRACE spots leaks . . . present or future. Its vivid stay-red color indicates them plainly. Add it to any refrigeration system and be ready for the red signal.

. . . and we haven't raised our prices!

Season's
Greeting
and
Best Wishes
for the
New Year

HIGHSIDE CHEMICALS COMPANY
195 VERONA AVE.
NEWARK 4, N. J.

at the time set. Before handing over the suggested frozen food package, however he asks the housewife to look at the full line carried in the truck.

This automatically divulges whether or not she already has a home freezer, or sufficient frozen food storage space in her refrigerator. If not, the salesman gets inside the house and takes plenty of time going over the features of the Bishop home freezer, pointing out food economies, and savings in time and effort.

No attempt is made to clinch the

sale immediately (unless Boark has received a new shipment of the freezers), but the customer is asked to make a definite appointment for a later showing. Thus, both freezer and frozen food sales are made simultaneously in many instances.

To clinch freezer sales, the Boark concern has adopted a policy of sending out a \$50 consignment stock of frozen foods with each freezer. The deliveryman inventories the contents of the box each week, charges off those used, and incorporates four such weekly checks in a monthly bill

sent to the homeowner.

The salesman receives a 10 per cent commission for this work, in addition to a salary for the truck driving and promotional effort involved. A dozen home freezers have already been sold through this plan, and a long list of active, ready-to-buy customers compiled.

Long-Range View

"We're taking the long view in selling home freezing equipment," Mr. Clark states. "This program does away with the nuisances and irritation of cold-canvassing up one side of the street and down the other. At the same time, it gives us a clear idea of the market and a chance to develop interested, enthusiastic prospects to be sold later on—not to mention a profitable volume of frozen food sales."

"To develop frozen foods equipment sales to the utmost, the dealer must get out into the field and educate his housewife-customers on the use and advantages of frozen foods. Mr. Clark maintains. "And we believe that this program of ours is the best means of doing so."

U.S. INSTRUMENTS Tell the Truth

UNITED STATES GAUGE

6 out of 10 manufacturers of original equipment SPECIFY USG

Tomorrow's accuracy is here today in the new U.S. Supergauge. Get complete information about this superb instrument now.

DIVISION OF AMERICAN MACHINE AND METALS, INC., SELLERSVILLE, PA.
Manufacturers of Pressure, Temperature, Flow and Electrical Measuring Instruments

USG

MECHANICAL REFRIGERATION

The Watchdog of the Nation's Food Supply

Coils for Refrigeration
Coils for Air Conditioning
Air Conditioning Units
Humi-Temp Forced Convection Units
Polished Aluminum Disseminator Pans
Steel Plate Coils
Evaporative Condensers
Industrial Coolers
Water Coolers

LARKIN COILS
519 Memorial Dr., S.E.
ATLANTA, GA.

ABOUT PEOPLE . . .

Continued from page 34

wholesaling firm, made this announcement in conjunction with the company's current expansion plans.

Edwin P. Vanderwicken has been appointed secretary and treasurer of York Corp. Mr. Vanderwicken had formerly been assistant to the president of Signode Steel Strapping Company, Chicago, and treasurer of Signode International Ltd. and its subsidiaries.

Harry Newcomb, vice president and assistant to the president of Servel, Inc., since 1943, has been named executive vice president of that organization. Mr. Newcomb joined Servel in 1934 as manager of the commercial refrigeration division, after having previously been associated with both Norge and Copeland.

J. P. Simon has been appointed manager of the Philadelphia district

office of Cutler-Hammer, Inc. In this position he will direct all sales in the Philadelphia territory and will supervise the company's branch offices in Baltimore, Washington, D. C., and York, Pa. Mr. Simon has been associated with the Cutler-Hammer organization since before his graduation from college in 1928, and has been working in the Philadelphia office for most of that time.



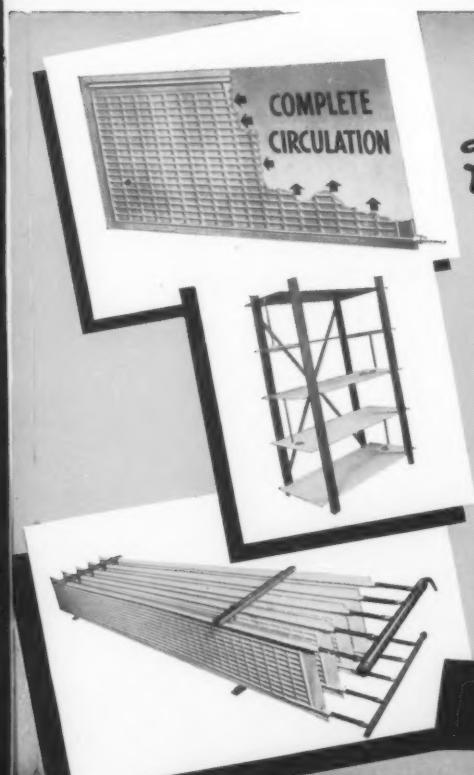
Henry F. Daley has been appointed district application engineer in the Middle Atlantic district of B. F. Sturtevant Co. Division, Westinghouse Electric Corp. A veteran of 28 years with Sturtevant, Mr. Daley held the position of power and marine sales specialist before his newest promotion.



Vast Home Locker Field Open to Tyler Agents

Of great importance in the new Tyler program is the fact that Tyler agents now have two complete lines—the complete, out-in-front, always-improving Tyler welded steel commercial line, and the growing Tyler Harder-Freez Home Locker line.

Aggressive national advertising is publicizing the Tyler name and Tyler products. Sub-Agencies are available. Write Tyler Fixture Corporation, Dept. RI-1, Niles, Michigan.



For Complete Surface Freezing

HUBBELL-YODER REFRIGERATION PLATES

—and we mean "COMPLETE SURFACE."

Take a 19" x 108" Hubbell-Yoder Plate for example. That's 2052 square inches of plate area. And every single square inch is actual prime heat pickup surface. You see the interior of the plate is a network of ducts through which the refrigerant circulates, spreading out in all directions so as to form a web of refrigerating element. That's "Complete" Surface Freezing."

If you make, sell or use low temperature equipment such as freezer cabinets, locker plant plate banks, sharp freeze shelf stacks, etc., it will certainly pay you to get details on Hubbell-Yoder Plates. They'll step up operating efficiency and reduce operating costs. As the old darkey said, "Dat am no prophecy: dat am a fact." Write, wire or phone.



International Sales Agents
ENGINEERING SERVICE INC.

1311 WEST 80TH STREET

CLEVELAND 2, OHIO



**TESTED BY USE
ALL OVER
THE WORLD
RANCO TYPE "O" CONTROLS**

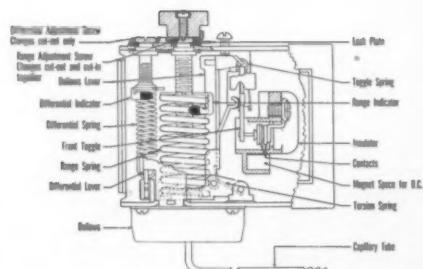
Jobbers, service men, refrigeration engineers everywhere know the tested by use worth of Ranco Type "O" — more than 10 million Ranco Controls now serve the industry.

Ranco's practical . . . smart . . . vermin proof steel cover is a fitting compliment to the precision engineering of its working parts.

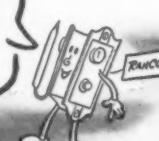
Stainless steel — Beryllium copper — silver soldered joints defy rust, give extra strength to internal moving parts.

Visible temperature and pressure scales respond instantly to the turn of a knob — changing cut-in and cut-out together. Cut-out adjustment can be changed independently.

Jobbers everywhere sell Ranco. See YOUR jobber today and write for Bulletin No. 1042 for complete information on Ranco Type "O" Commercial Controls.



Ranco Type "O" for temperature or pressure control.



Ranco Inc.

COLUMBUS 1, OHIO

THE REFRIGERATION INDUSTRY

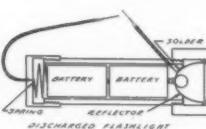
Heres' how

THE SERVICE MAN'S DEPARTMENT

Take Your Jobs to Your Prospects

All of us who sell refrigeration equipment know how effective are the endorsements of users for whom we've installed equipment. When one of our better jobs happens to be located near a prospect we're trying to sell, we'll take the prospect around to see the job and hear what our user has to say in praise of it.

But often that isn't possible because



HERE is a simple continuity tester that comes in handy around any shop.

I made this one from a discarded flashlight with a faulty switch. Drill a hole through the back cap to take an insulated wire, and solder it to the spring that holds the batteries snug. Next drill a hole through the head, and solder an insulated wire to the reflector.

Touch both free ends together and you have a completed circuit.

Do not use on electric wires while the current is on.

Robert Recar, St. Louis

of time, distance or other factors; so the next best thing—and a mighty selling tool it is—is to have a portfolio of photographs of some of our "show" jobs, and a signed statement from the user telling about them.

With a good file of installation photographs, you can take the prospect all over the territory in a matter of minutes; you can visit your "show" jobs faster than you can get your car out of the parking lot.

This isn't exactly a new idea; many refrigeration men have been using photographs in their sales work for

Edited by
Warren W. Farr

some time. There are, however, some very definite rules to be observed if you want to make photographs an effective sales tool for you. Just like any other selling tool, pictures can do either a good job or merely a so-so one, depending on how you go about obtaining and using them.

We'll be back next month with some suggestions on how to make pictures most effective in "selling" your organization to prospective customers.

Take Care of Tubing

Open tubing, in the shop or out on the job in the field, attracts dirt and moisture unless it's cared for properly. Don't leave a roll of tubing lying around open and unprotected, even for a short time. After you've cut off a piece to suit your immediate needs, hammer or pinch the ends together again. You'll find it will save you trouble in the long run.

When is the Condensing Unit Overloaded?

It may not always be the easiest thing in the world to recognize when a

HELP WANTED

. . . By your fellow refrigeration service engineers. They can use your installation and applications ideas on refrigeration and air conditioning, your short cuts, shop practices, etc.

And there's money in it for you. REFRIGERATION INDUSTRY pays \$5 for each idea published. Send yours to

Here's How Editor
The Refrigeration Industry
1240 Ontario St.
Cleveland 13, Ohio

condensing unit is overloaded. Recalculating the Btu load often will quickly show that the unit has been put on a job too big for its capacity.

Symptoms of an overloaded condensing unit are: continuous operation, high head pressure (especially with air-cooled condensing units), high suction pressure, excessive water usage (with water-cooled condensing units), hot electric motor, and abnormal evaporator temperature.

Obviously, the correction is either to reduce the heat load or replace the condensing unit with one of larger capacity.



ANY conventional type of screw driver can be made into a screw holding screw driver by using a piece of friction tape about an inch long folded over the end of the blade.

It is a good emergency tool, and you use the screw driver which fits the job. I have used this method successfully for several years.

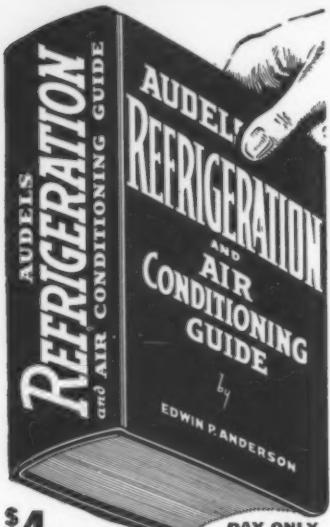
K. J. Craigie, W. St. Paul, Minn.

Locker Plants Need New Equipment, Too

When you set your sights on replacement and new equipment sales possibilities for 1947, don't make the mistake of giving the locker plant field the once-over-lightly. Here is a real market, one that you can work with to very good advantage from a standpoint of replacement equipment alone—to say nothing of the job you can do if you're in a position to contract for new plants or additions to existing ones.

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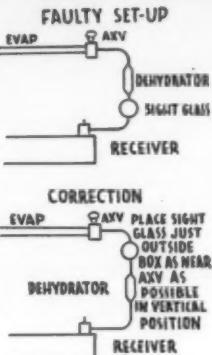
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HERE is the procedure I used in working on an ice cream cabinet which was being used as a meat storage freezer. The freezer was working and freezing all right but not shutting off. I noticed the liquid line was sweating a little. Upon installing a set of gauges, the pressures were almost normal.

I finally decided to change the dehydrator and removed it. I found it almost plugged. There was a sight glass on the system and it showed a sufficient amount of F 12 refrigerant.

Here is a diagram of a faulty set-up and the way I connected the system so the sight glass would have shown the restriction by just looking at it.

J. C. Robinson, McKeesport, Pa.

ing, in round numbers, that there are 8,000 locker plants in the country today, here's the picture:

25% of the present plants need retail store cabinets for the sale and dispensing of frozen foods. Set the figure here at roughly 2,000 units.

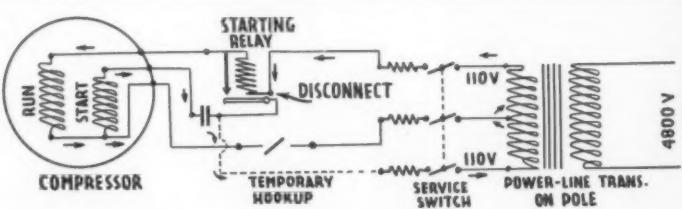
About 40% need new compressors and condensers, and since more than one unit per plant is required, the market here can be set at about 7,000 units.

Some 30% require quick freezing equipment—plates, coils, units, etc.—

adding another 2,500 units to the total.

Storage lockers are needed by between 35 and 40% of present plants; fan equipment by over 25%, cooling towers by perhaps 15%.

Alert locker operators are working themselves in as an integral part of the frozen foods business; and as they grow, so do their equipment needs. Alert refrigeration men won't need more than one reminder that here is a field it will really pay them to cultivate.



HERE is how to loosen a stuck-up hermetically sealed unit by reversing the motor starting force. This can be done easily at little or no extra expense to the service man, and in some instances right on the job.

Direction of motor rotation force is changed by the change of direction of electric current in the starting winding. Now that the running and starting winding are connected together within the sealed dome, the question is how this can be done.

In homes with 220 volt current a reverse phase can be applied to the starting winding by connecting the third wire of a 220 volt service to energize the starting winding to get this temporary reverse electric motor force.

Disconnect starting winding from relay or insulate starter relay contact so as not to short out when temporary hookup is made. Now run a temporary wire connected between starter capacitor and starter relay contacts to other side of house service of 220 volts as indicated by

dotted line.

It must be remembered that a stuck-up condition in a compressor usually indicates a collection of dirt due to moisture or an acid condition, and though we get the compressor running again, this must be taken care of or we will only have a temporary repair.

The unit must be evacuated of all its refrigerant, and baked out under a vacuum before recharging it with dry refrigerant. If possible, a drier or strainer should be installed in the liquid line to catch any dirt that might be in the unit.

Willis J. Bockée, Birmingham, Ala.

(Editor's Note: By and large, 220-volt 3-wire service is not supplied to homes, except for those using heavy current-using appliances such as an electric range. Most service shops, however, do have this current, so the procedure outlined here would be a shop operation, generally speaking, rather than one that is done at the scene. Also, while this procedure is all right in an emergency, it cannot be recommended as a standard practice.)

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AMERICAN Flexible Refrigeration Charging Hose is a brand new product—engineered to give top-notch service and exhaustively tested in the field.

This new hose is built to stand up under high pressures, chemical attack and hard use, with 7/16"-20 SAE fittings securely swaged on by a special process—the whole assembly impervious to moisture.

This product is sold only through refrigeration and air conditioning supply houses. It is made in two lengths (2 ft. and 3 ft.); each unit is individually packed. Special 3" copper tube end pieces complete with nuts are available separately if desired. Literature on request.

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PLANNED MAINTENANCE . . .

Continued from page 42

the results that two years later, stationed at an overseas base, he specified the purchase of 40 air conditioning units of the same make, based upon his experience with the one unit on which a maintenance agreement had been sold.

Main Points Summarized

The aggressive sale and use of maintenance agreements should bring about the following results:

- (1) Ensure product performance and win customer satisfaction.
- (2) Increase the sale of related products. This is possible because the service man, in performing the schedule of services included in the agreement, maintains periodic contact with the customer. If he performs the service properly and thus gains full confidence of the customer, he can often suggest the need of additional equipment during these contacts, with the practical result that the customer will buy such equipment.
- (3) Obtain other new prospects.

The satisfied customer often furnishes the names of other prospective buyers who became interested through personal contact and observation of the customer's installation.

(4) Reduction of service reserve rate. Inasmuch as the purchaser of the maintenance agreement is now paying directly for maintenance services, the service reserve rate set up by the dealer can be reduced—in most cases at least 2%.

(5) Balanced service department operation. Sale of the maintenance agreement provides an additional source of dealer income notably free from the up and down effect of business cycle and seasonal change. This factor of stability also makes for better personnel relations because it promotes the feeling of greater individual job security.

(6) Increased dealer profits. Obviously if the dealer increases the sale of related products, obtains new prospects, reduces his service reserve account and improves his service operation, he is certain to increase his overall profits and at the same time build sound customer good will.

A Service Bulwark

Today many business organizations are so occupied with current postwar problems of supplying the existing demand that very few have developed even tentative plans to fortify themselves against the day when easy selling will be over. It is always a grave mistake to place all the eggs in one basket.

A wise business operator will safeguard against future contingencies in several ways. One of the most effective means at his disposal is wide diversification in the services he has to offer the public. Consider, for example, the enviable position of a specialty selling organization capable of carrying its fixed overhead out of the revenue derived from its customer parts and service business. There are a few such organizations in existence today. Doubtless there would be many more if the potentialities of the parts and service department of the business were more widely recognized.

When properly used, the maintenance agreement can be a potential instrument in the hands of the specialty selling organization in helping to build a profitable service business to withstand the lean periods that inevitably come.

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OPA CONTROLS OFF, BUT CPA CONTROLS STILL ON

All OPA controls governing prices and wage increases or decreases were dropped as of Nov. 10; however, a number of CPA (Civilian Production Administration) rulings are still in effect on important materials still in short supply.

One of these is the tin order, M-43, which contains a certification procedure on solder.

Another is Priorities Regulation 32, covering inventories of materials, parts, equipment, etc. It provides that a person, whether buying for use or re-sale, may not accept delivery of any material if it will make his inventory of that material more than a practical minimum working inventory necessary to meet his own deliveries or to supply his services, based on his regular or scheduled method and rate of operation.

Construction order VHP-1 remains in effect. It restricts certain kinds of construction, installation and repair work. Exempted, however, are cooling towers, refrigerators, refrigerated display cases, soda fountains and water coolers, if not constructed as an integral part of a building; also air conditioning equipment, where required to provide humidity or temperature control for industrial processing, and self-contained units without duct systems; also equipment such as compressors, in a cold storage warehouse or frozen food locker plant. There is a \$1000 limit on work done without specific authorization on frozen food locker plants and a number of other classifications.

CALIFORNIA GROUPS SEEK NEW STATE CODE

Organized refrigeration associations in California are moving to ask the California state legislature for a new state code and a stricter written examination for a refrigeration specialist license. Cooperating in the move are the Refrigeration Contractors Association of Northern California, San Francisco; the Refrigeration Contractors Association, Inc., Los Angeles; and the California Association of Refrigeration Service Engineers Society. A specimen set of examination questions is being framed for submission to the state licensing authority.



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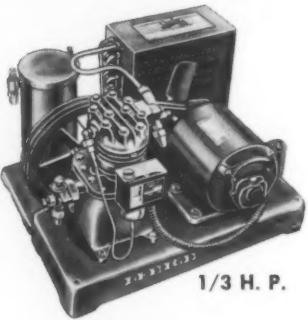
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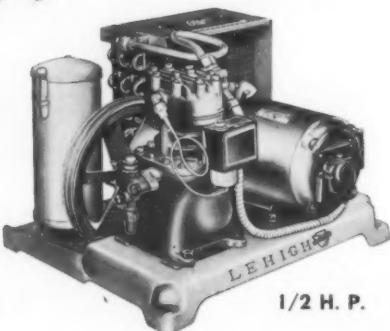
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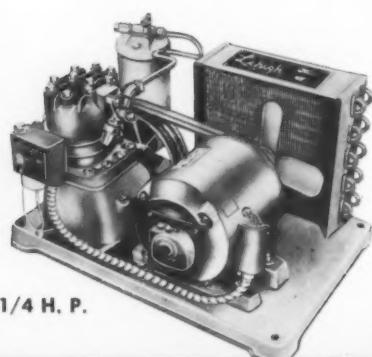
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1/2 H.P.



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"WHILE we're making up our New Year's resolutions, let's resolve to do whatever we can, as individuals, to avert a short of Freon refrigerants this year. It's a pretty safe bet none of us wants to go through what we did in the year that's just ended.

"There's been a lot of speculation as to what's caused the Freon-12 shortage. Hours of telephoning, yards of correspondence and telegrams (and plenty of cussing, too) have gone into the discussions, without having seemed to have accomplished much in the way of developing anything that most of us didn't already realize; namely, that there just wasn't enough of this particular gas to go around.

"All these discussions did do one important thing, though: they made almost everybody mighty well aware of the problem, and anxious to see it settled by next summer; for talk is a poor substitute for Freon-12 when a customer's looking you in the eye and asking you how in the blanket-blank he's supposed to keep his meat from spoiling when he can't get the refrigerant to do it with.

"What we're all up against is next summer—and all the talking in the world won't help unless we get to work and do something about it.

"Kinetic says that the return of shipping cylinders holds the key to 1947 supplies of Freon. New cylinders, which all leading refrigerant producers have had on order for months and months, have been delayed by strikes and shortages of sheet steel. That leaves it up to the field to get back to the factories those cylinders now empty.

"Unless a sufficient supply of replacement cylinders comes in, it's impossible for the refrigerant producer—Kinetic or anybody else—to maintain full production.

"So let's all of us do everything we can to get those empty cylinders

rolling back to the factories again.

"There are four main things all of us can do while Freon's scarce:

"1. *Don't hoard Freon-12, but buy it on the basis of your current needs.*

"2. *Return empty cylinders promptly. That's important. Get back into use any empties that are lying around, anywhere. A search for empties, in your community, should be most helpful.*

"3. *For the time being, insofar as possible, supply Freon-12 only for the most important uses. By so doing, you'll be doing your part in the conservation effort.*

"4. *Keep your jobber, or your local or national service or contract-*



"Better put something in there about buying a new reach-in, too."

tors' organization, fully informed on the Freon-12 situation in your territory. Tell them—right away—when you encounter difficulties. Give specific information on the emergency needs in your territory that you can't supply—food markets, locker plants, hospitals, and other important places—your association will get into action at once with the factory, and see what can be done to rectify the situation. If you haven't a local association, call your jobber; he'll go to bat for you, and see that the proper sources learn of the seriousness of your plight.

"But getting those empties back is the most important thing—so look around now, and get to work on it."

PLANS \$23,000 PLANT

Dr. J. D. Dantone has announced that he will build a \$23,000 locker plant at Hammond, La.

UTAH STATE COLLEGE HAS 2-YEAR COURSE

To complete a two-year course in refrigeration and air conditioning, Utah State Agricultural College, Logan, Utah, has added Dean Hale to its staff of instructors. Mr. Hale has had wide practical experience in refrigeration work. The courses in refrigeration are conducted by the college's Department of Refrigeration Training.

CARRIER TO EQUIP 8 NEW BREWERIES

An order for refrigeration and other mechanical equipment totaling \$1,250,000 has just been received by Carrier Corp., for installations in eight new breweries which will be built in various cities of Colombia, South America, next year. The contract was obtained by Carrier International, New York, Carrier's export division.

The breweries will be built by Consorcio de Cervecerias Bavaria, S. A., Bogota, which already operates a

chain of nine breweries in Colombia. The Carrier equipment was selected by a purchasing mission of engineers and brewmasters headed by Dr. Julio Jimenez, which spent nearly a year conducting investigations and studies of the refrigeration systems and brewery practices in the United States.

Carrier will supply 16 centrifugal compressors—two for each new brewery—and allied refrigerating equipment, including cold diffusers, etc.

TRUCK COOLING FIRM

Aaron J. Cohen, Alexander J. Hadid and Milton H. Cohen have organized the Transportation Refrigeration Corp. of Houston, Tex., to engage in the manufacturing business.

NEW \$14,000 PLANT

The Little Rock Refrigeration Co., Little Rock, Ark., of which Joe A. Brown and J. H. Smith are owners, has let a \$14,000 contract for construction of a locker plant here.

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The MARKET Place

FOR SALE

FOR SALE: 2 new Marlo evaporative condensers Model EC7-1/2. These evaporative condensers will each handle a 15 H.P. compressor and are complete in every respect. Kitzman Refrigeration Service, 562 E. Sarnia, Winona, Minn.

FOR SALE: 12-16-19-22 and 26 cubic foot freezer cabinets. Write for list and prices. Rathbun Refrigeration Company, 44 Market Avenue, N.W., Grand Rapids 2, Michigan.

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We buy, sell, trade household and commercial refrigeration compressors, coils, tubing, motors, A.C.-D.C., Farm lighting plants. Give complete details. Write Myers Electric, Manitowoc, Wis.

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IMMEDIATE DELIVERY—Air Units complete with all copper coil, insulated panel, sheet metal casing, fan, heat exchanger. Suitable for locker plants and walk-in coolers. Price, \$115.00 FOB, Indianapolis. Write PALLER ENGINEERING COMPANY, 5610 Carrollton Avenue, Indianapolis 5, Indiana.



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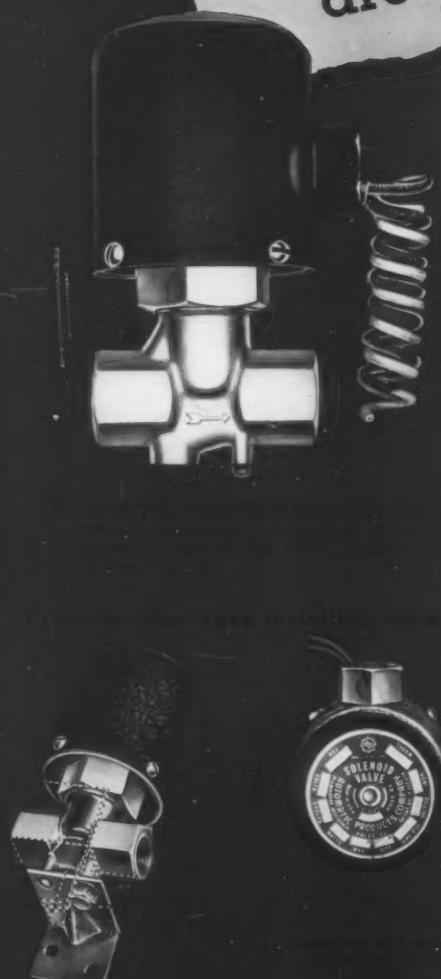
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How to Avoid Saving Money

by DANNY KAYE



To avoid saving money, the first thing is to cut off all your pockets. (Or throw away your purse and keep your lipstick in your snood.) Thus you will have to carry your money in your hand. Which will insure that you—1. spend it, 2. lose it, 3. get it taken from you—quicker!



Also to be avoided like crazy are piggy banks and sugar bowls. Keep these out of your home! The kiddies in particular are victimized by such devices, often saving quite a bale of moolah. Be stern even if the little ones cry—remember what money could do for them! And be sure to avoid budgets. It is best to draw your pay and walk down Main Street buying anything you don't particularly hate.

Above all, don't buy any U. S. Savings Bonds—or it's impossible not to save money! These gilt-edged documents pay fat interest—4 dollars for 3 after only 10 years! There is even an insidiously easy scheme called the Payroll Savings Plan by which you buy bonds automatically. Before you catch on, you have closets full of bonds. You may even find yourself embarrassed by a regular income! Get-gat-gittle!



Danny Kaye

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BUY YOUR BONDS THROUGH PAYROLL SAVINGS

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